

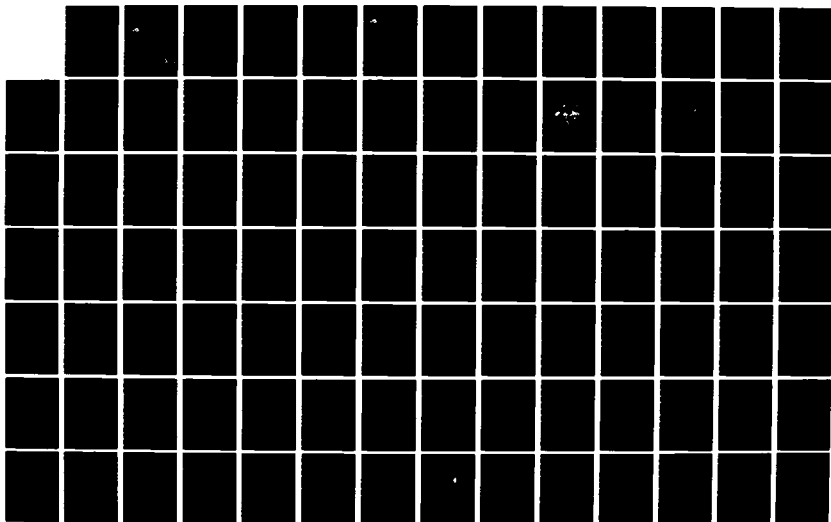
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AN ANALYSIS OF AIRCRAFT DATA COLLECTED IN THE ALBORAN
SEA DURING DONDE VA. (U) NAVAL OCEAN RESEARCH AND
DEVELOPMENT ACTIVITY NSTL STATION MS.

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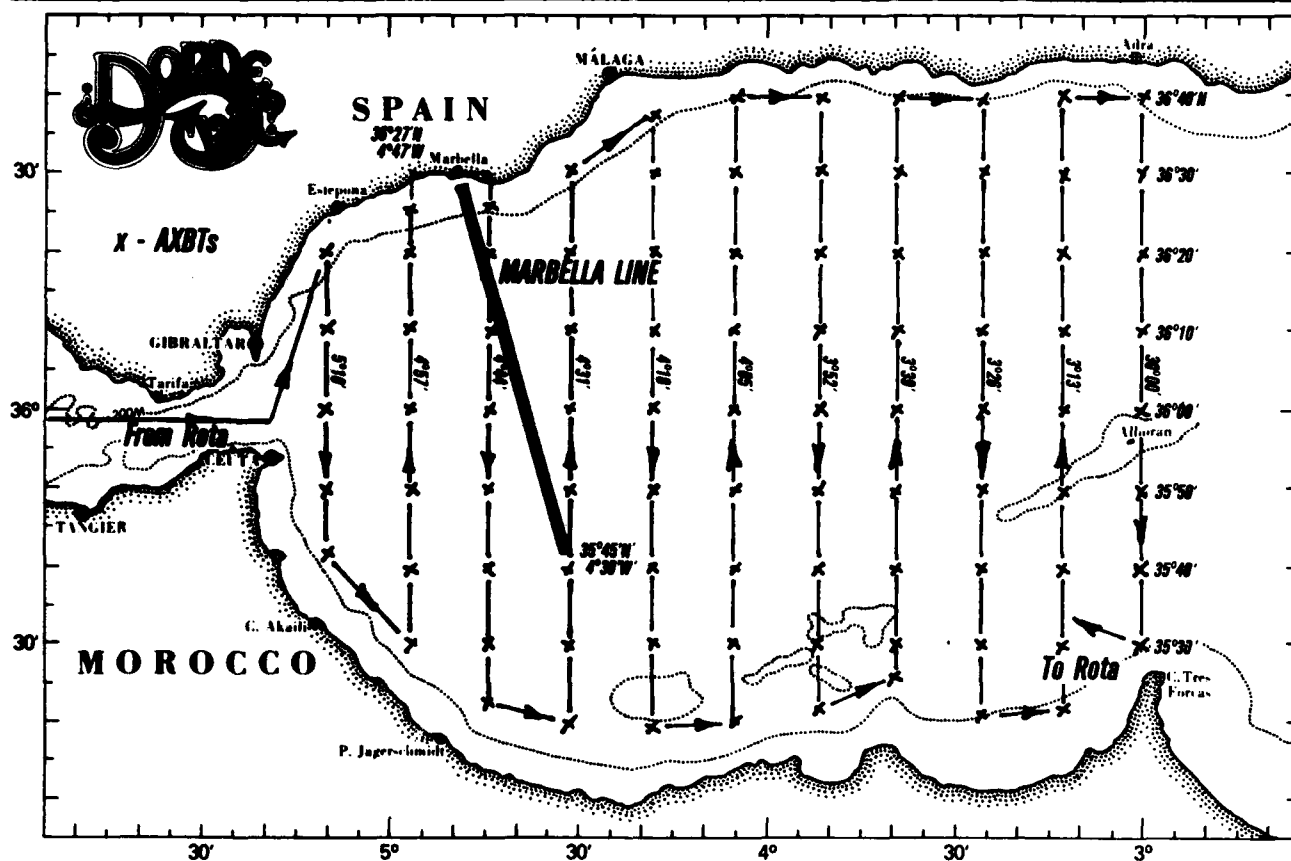
AD-A133 995

NORDA Technical Note 222

Naval Ocean Research and
Development Activity
NSTL, Mississippi 39529



An Analysis of Aircraft Data Collected in the Alboran Sea During ¿Donde Va?, 6 Through 18 October 1982



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July 1983

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ABSTRACT

During the period 6-18 October 1982, a U.S. Navy aircraft flew a series of oceanographic survey flights over the Alboran Sea as part of a multi-platformed international experiment called Donde Va? The purpose of the flights was to measure the surface and subsurface temperature distribution, the short-term surface flow, and the atmospheric conditions during the period of the intensive field investigations.

This technical note describes these flights and presents the analyses of the Precision Radiation Thermometer (PRT-5), the Airborne Expendable Bathythermograph (AXBT), the sonobuoy drift, and the Inertial Navigation System (INS) wind data. *4*

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ACKNOWLEDGMENTS

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AN ANALYSIS OF AIRCRAFT DATA COLLECTED IN THE ALBORAN SEA
DURING DONDE VA?, 6 THROUGH 18 OCTOBER 1982

by

Paul E. La Violette

and

Jeffrey L. Kerling*

I. GENERAL

During the period 6 through 18 October 1982, a U.S. Navy aircraft flew a series of oceanographic survey flights over the Alboran Sea as part of a multi-platformed international experiment called Donde Va?**. The purpose of the flights was to measure the surface and subsurface temperature distribution, the short-term surface flow, and the atmospheric conditions during the period of the intensive field investigations.

This Technical Note describes these flights and presents the analyses of the Precision Radiation Thermometer (PRT-5), the Airborne Expendable Bathythermograph (AXBT), the sonobuoy drift, and the Inertial Navigation System (INS) wind data.

Position information during the flights were recorded simultaneously from the three navigation systems listed in Table A. These systems were updated several times during each flight by radar fixes and landmark overflights. A post-flight navigation accuracy assessment was made to determine each systems' overall performance. Additional corrections were applied to each fix based on inertial drift rates in order to plot the most accurate position for individual survey events. (Inertial navigation system (INS) #2 showed overall best performance during the study.) Wind speed was computed continuously by all navigation systems and recorded in the navigator's logs at the time of each major event.

The aircraft oceanographic and meteorological equipment are described in Tables B and C, respectively. The dew point hygrometer malfunctioned at the start of the mission and no humidity data is available.

Surface temperatures were obtained using a PRT-5. A study of the differences between the PRT and AXBT temperature values is presented in Table D (the PRT measures the radiation temperature of the water, whereas the AXBT measures the sensible water temperature at a depth of approximately one meter). The study was made by determining the daily mean of differences obtained by subtracting the PRT temperature value from the AXBT surface temperature value at each AXBT drop point.

*Naval Oceanographic Office, NSTL, MS 39522

**This portion of Donde Va? was sponsored under a contract with Office of Naval Research, Code 422, Coastal Sciences. The primary objective of Donde Va? was to measure the velocity and hydrographic structure of the incoming flow of Atlantic water. A full description of data collection approach to the experiment can be found in the "Donde Va? Operation Plan." A limited number of copies are available for individual requestors.

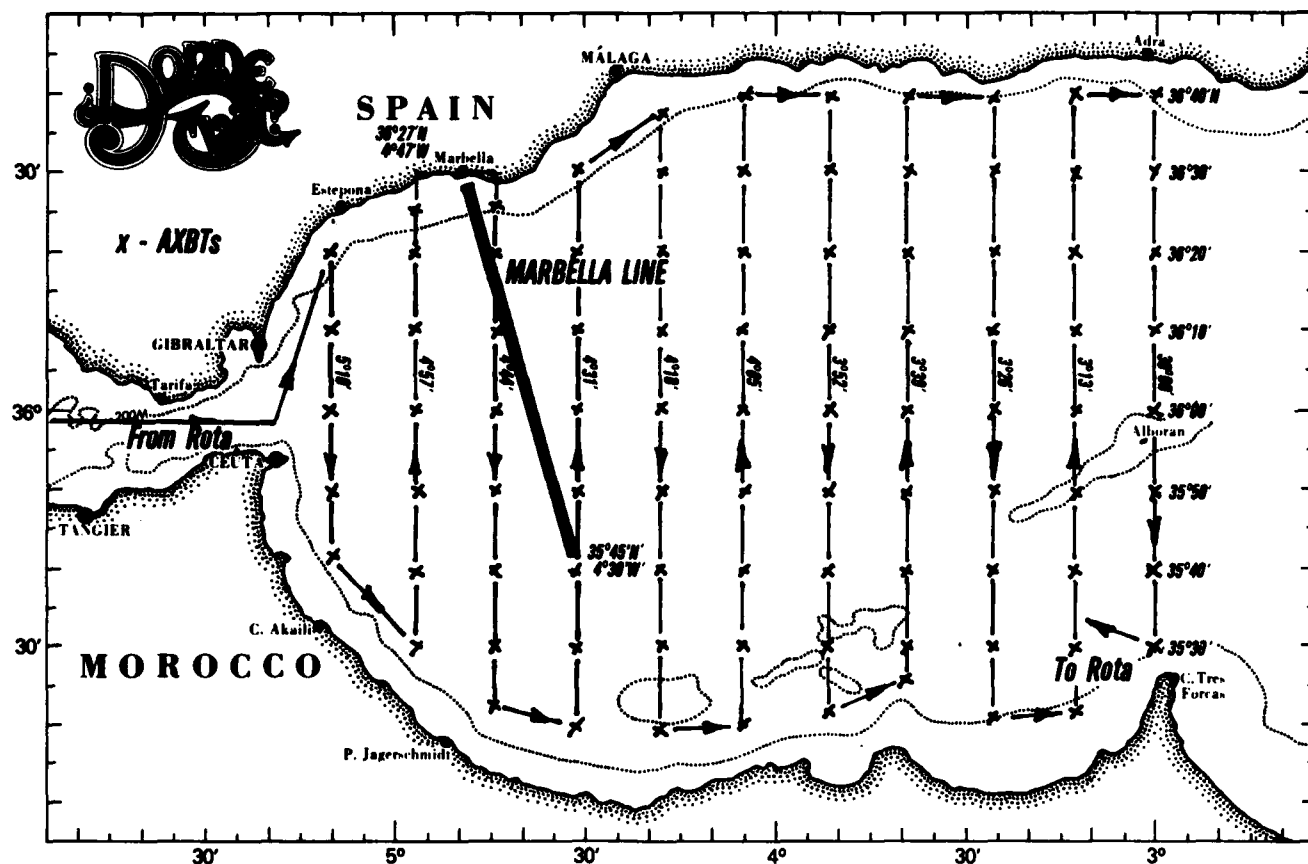


Figure 1. Mapping (A-B) and Marbella Line (C-D) generalized flight tracks from the Donde Va? operation plan. During the mapping flights AXBTs were dropped every 20 km along longitudinal lines spaced every 13 minutes of longitude. The inshore AXBTs on the longitudinal lines on each side of the longitudinal Marbella Line were dropped at 36° 25' latitude. AXBTs on the southern extremes of the lines were dropped just outside the Moroccan 22 km territorial limit.

Table A. NAVOCEANO SEASCAN AIRCRAFT

Type - RP-3A, four-engine, turbo prop.

Crew - Five scientists - 13 Navy flight crew.

Agency - Technical Control: U.S. Naval Oceanographic Office, National Space Technology Laboratories, Mississippi

Operational Control: Oceanographic Development Squadron Eight, (VXN-8), NAS, Patuxent River, Maryland

Operation Performance

- Operation range: approximately 5,185 km (with 3-engine loiter)

- Operation speeds: plane can operate with one engine loitering depending on weather and survey requirements - speeds for this survey are as follows:

Operation area - 333-444 km/hr (3 engines)

Enroute op. area - 555 km/hr (4 engines)

- Max. operation altitude: 3,280 m (unpressurized)

- Min. operation altitude: 60 m

- Navigation: - Two inertial Navigation System (LTN, 51) - ± 0.19 km (relative accuracy)

- One GNS-500 VLF Comm/Omega

Since the standard deviation of these daily measurements are relatively small, a simple adjustment may be made to any single day's PRT data to make them comparable to that day's AXBT data. For example, the PRT surface temperature analysis for 11 October can be made compatible with the AXBT data by subtracting 0.4°C from the isoline values.

Surface drift estimates were obtained by deploying SSQ-57A sonobuoys at equally spaced intervals along a linear track, then relocating each buoy later in the flight using the aircraft's sonobuoy tracking system. The variation between their initial drop points and new position, after drifting over a period of four to five hours, provided the data for deriving individual buoy drift speeds and directions. Sonobuoy specifications are detailed in Table E.

On several occasions the entire line of sonobuoys was tracked twice, with the first tracking occurring two hours after the sonobuoys were dropped. On these occasions, the results of both trackings showed linearity in direction and speed. Thus, only the longer drift measurements are used to compute the drift rates and directions presented here. However, the positions of both the first and second drift locations can be found in the navigator's log also presented in this Technical Note. Thus, the reader may replot the various drifts to get the total drift vector. All times listed in figures and navigator's logs are Greenwich Mean Times.

TABLE B - OCEANOGRAPHIC EQUIPMENT ABOARD SEASCAN AIRCRAFT

INSTRUMENT TYPE/MANUF/MODEL	PARAMETER	MEASUREMENT TECHNIQUE	RANGE	ACCURACY	RESPONSE TIME
Airborne Radiation Thermometer Barnes Engineering Co. Model PRT-4A	Radiometric sky temperature	A thermister bolometer bridge circuit detects in the 8.0-14.0 micron region.	-60 to +20°C Can adjust to wider range for measurement of sky temperature.	+0.55°C under Laboratory conditions	1 sec
Precision Radiation Thermometer Barnes Eng. Co. Model PRT-5	Radiometric surface temperature	Same as above except uses 9.5 - 11.5 region.	-30°C to +80°C 2° field of view	+2°C when Below 1000 feet and after environmental corrections.	Selectable: 5 msec 50 msec 500 msec
Infrared Scanner Texas Instruments RS-310	Radiometric surface temperature	Energy received in the 8-14 micron region is focused on Mg Cd Te detector and is translated to modulate the intensity of a light spot focused on film.	120° field of view.	+0.1°C theoretical thermal resolution with 3 milli-radiad detector. +0.011°C theoretical thermal resolution with 3 milli-rad detector.	
Laser Profilometer Spectra-Physics, Inc. Model 3A Geodolite	Surface wave heights and terrain profiles.	Amplitude-modulated helium-neon laser beam is reflected from the target, received, and converted to a range value	Typical operating altitude is 500 to 1000 Range Steps: 10; 100; 1000; 10,000; and 100,000 ft.	+3 inches during operation in the range of 500 to 1000 feet.	Selectable for 1, 3, 5, 10, 20, 50, or 100 msec
Airborne Expendable Bathythermograph (AXBT) Selected Govt. Contractors Model AN/SSO-36	Water temperature vs depth profile	Frequency modulated signal containing temperature data radioed to the aircraft where signals are converted to temperature values.	-2°C to +35°C 0 to 400 meters (0 to 1312 feet)	+0.5°C off-the-shelf. +0.15°C with recalibration. 5% of depth.	5 sec
Still Picture, Aerial Camera Wilde Herburg RC-8	Visual	2448 color positive, film 8"x8" format.	73 44' field of view. Coverage at 10,000 approx. 15,000.	60 lines/MM (AWAR)	Shutter speed 1/1000 sec Frame Speed 1 per sec.

TABLE C - METEOROLOGICAL EQUIPMENT ABOARD SEASCAN AIRCRAFT

<u>INSTRUMENT TYPE/MANUF/MODEL</u>	<u>PARAMETER</u>	<u>MEASUREMENT TECHNIQUE</u>	<u>RANGE</u>	<u>ACCURACY</u>	<u>RESPONSE TIME</u>
Dew Point Hygrometer Cambridge Systems, Inc. Model 137-C3-S3	Dew Point	Stainless steel mirror is cooled to air saturation (dew point) temperature utilizing a thermoelectric cooling technique. An optical system senses the dew and controls the mirror temperature at dew point.	-50° to +50°C	+1°C below 0°C +0.5°C above 0°C	3°C/sec when at nominal depressions.
Pressure Transducer Rosemount, Inc. Model 1301A	Absolute barometric pressure	Variable capacitance proportional to pressure.	370 to 1035 mb	+1 mb	25 msec
Quartz Crystal Thermometer Hewlett Packard Model 2801A	Outside air temperature also used for flight calibrating of PRT-5	Indicates temperature as a consequence of frequency changes exhibited by temperature sensitive quartz crystals used as sensing elements.	-80° to 250°C	+0.02°C	Less than 0.2 sec

Table D. Variation between PRT and AXBT (surface) Temperature Values

<u>Date Oct (1982)</u>	<u>Number of Comparisons</u>	<u>Mean Difference (AXBT-PRT)</u>	<u>Standard Deviation</u>
6	88	(+)0.03	0.27
11	63	(-)0.38	0.65
13	15	(+)0.23	0.26
15	54	(-)0.23	0.50
18	*	*	*

* No AXBT data available

TABLE E. SSQ-57A Sonobuoy Specifications

- o Description and function.....Passive, omni directional measurement of underwater acoustical energy
- o Transmission channels & power.....31 channels 1 watt
- o Length (freeboard), width, and weight.....91.4 cm (15-20 cm) 12.4 cm, and 6.8 Kg
- o Operating depth of hydrophone.....18 m (selected)
- o Operating life.....8 hours (selected)
- o Antenna.....Whip

Table F. RP-3A Data Collection during Donde Va?

<u>Flight No.</u>	<u>Date</u>	<u>Type Flight</u>	<u>PRT</u>	<u>Buoys Deployed</u>		<u>INS Winds & Air Temp</u>
				<u>AXBT</u>	<u>Sonobuoys</u>	
1	6 Oct	Mapping	Yes	88	0	Yes
2	9 Oct	Marbella Line	Yes	0	15	Yes
3	11 Oct	Mapping	Yes	79	15	Yes
4	13 Oct	Marbella Line	Yes	17	25	Yes
5	15 Oct	Mapping	Yes	75	15	Yes
6	18 Oct	Mapping	Yes	0	40	Yes

II. SURVEY DESCRIPTION

The RP-3A aircraft staged from Rota, Spain and normally entered and departed the study area via the Strait of Gibraltar. During the study period six flights were conducted, four of which were mapping flights over the entire Alboran Sea west of Alboran Island (Figure 1). During these flights, the aircraft dropped AXBTs approximately every 20 km to provide a grid of subsurface temperature data to a depth of 300 m. (Atlantic water is restricted to the upper 200 m, thus, these temperature data include all of the inflowing water.) Normally the aircraft flew at an altitude of 300 meters except where noted in the analyses. PRT temperatures were collected along all flight lines.

Sonobuoys were dropped during these flights along the longitudinal line 4°45'W from a point near Marbella on the Spanish coast to a distance 30 km north of the Moroccan coast. This line and another sonobuoy drop line originating at Marbella and situated at a slight angle to the 4°45'W line have been termed the Marbella Lines (Figure 1).

The remaining two flights were special flights whose flight tracks were limited to the Marbella Line. AXBTs were dropped on only one of these two flights, whereas sonobuoys were dropped on both flights. A listing of all of the flights, their purpose, and the instruments used is presented in Table F.

III. DATA PRESENTATION FORMAT

Part I, horizontal analyses and flight history will be presented in chronological order and will follow a standard format for each mapping flight:*

- navigator's log
- 300 m INS wind analysis
- sonobuoy drift
- surface temperature (PRT) analysis
- 20 m temperature (AXBT) analysis
- 50 m temperature (AXBT) analysis
- 100 m temperature AXBT analysis
- depth of the 18° isotherm

The sonobuoy drift data for the Marbella Line flights of 9 and 13 October is also presented in chronological order with the mapping flight data.

The vertical analyses in Part II will present one figure for each day that will include the INS winds, current (i.e., sonobuoy drift) analyses and the vertical temperature distribution along the Marbella Line and, in the case of 18 October, a generally east-west line.

IV. AIRCRAFT SCIENTIFIC AND TECHNICAL PERSONNEL

Paul E. La Violette, Chief Scientist	(NORDA)
Jeffrey Kerling, Aircraft Scientific Coordinator	(NAVOCEANO)
Norbert Schmidt, Electronics Engineer	(NORDA)
Phil Parrot, Electronics Engineer	(NAVOCEANO)
Ramon Andre Oriol, Technician	(CSC)
Michele Champagne Philippe, Scientist (France)	(CMS)
Heinz van der Piepen, Scientist (Germany)	(DFVLR)

*Note that no sonobuoys were dropped on 6 October and no XBTs were dropped on 18 October.

PART I
HORIZONTAL ANALYSES AND FLIGHT HISTORIES
6 OCTOBER 1982

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		Z OF		REMARKS
TIME	N/S EW	LTN#H	VLF	LTN#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA							
0941	N	25-40.9	25-40.7	25-40.5	103	102	173	236	280/41	221	2500											RT#6
0945		4-56.5	4-54.6	4-56.8																		
0945		35-50.4	25-49.5	35-50.0	359	812	351	218	272/32	223	✓											RT#7 Q-4
1000		4-56.7	4-54.7	4-57.0																		
1000		36-00.4	35-59.5	26-00.0																		
1000		4-56.8	4-54.9	4-57.0																		RT#8
1000		36-10.4	36-09.2	36-09.9	360	712	353	213	280/30	221	1500											RT#9
1000		4-56.8	4-55.1	4-57.0																		
1000		36-20.5	36-19.5	36-20.0	✓	✓	✓	✓	269/30	✓	✓											RT#10
1000		4-56.8	4-55.3	4-57.0																		
1000		36-25.6	36-24.5	36-25.1																		RT#11 A/H
1000		4-56.8	4-55.3	4-57.0																		RT#12
1000		36-24.7	36-23.8	36-24.0	183	512	188	223	270/15	221	✓											RT#13
1000		4-42.4	4-43.2	4-42.7																		
1000		26-20.4	26-19.6	26-19.7	181	102	191	224	280/22	217	✓											RT#14
1000		4-43.7	4-43.6	4-44.0																		
1000		36-10.2	36-09.3	36-09.3	180	112	191	224	275/39	221	✓											RT#15
1000		4-43.8	4-43.4	4-44.1																		
1000		26-01.0	26-00.2	26-00.1	180	912	189	207	280/25	229	✓											RT#16
1000		4-42.8	4-44.0	4-44.2																		
1000		35-51.0	35-50.2	35-50.0	✓	✓	✓	226	270/41	221	2500											RT#17
1000		4-42.8	4-42.9	4-44.3																		
1000		35-41.0	35-39.9	35-39.9																		
1000		4-43.9	4-44.0	4-44.4																		
1000		25-34.7	25-33.9	25-33.5	105	112	101	246	279/39	202	1000											RT#18
1000		4-42.5	4-42.5	4-44.0																		RT#19

OCEANDEVON EIGHT 3780/1 (REV 81)

2 May 62/4 3 March 83 hV

NAVIGATOR'S FLIGHT RECORD

A/O CMDR		NAV		SNR		AIRCRAFT BUNO						TRACK				FROM		TO		DATE		OF	
TIME	N/S E/W	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS							
016	N	35-31.7	35-30.2	35-30.5	353	9R	344	219	283/37	231	1,000					BT#18 Q=4							
135	W	4-30.8	4-32.0	4-31.3																			
19		25-41.8	35-40.5	35-40.6	359	9R	350	221	273/37	229	V					BT#29							
28		4-30.3	4-29.9	4-20.9																			
22		35-51.2	35-49.8	35-50.0	360	10R	350	V	273/40	232	V					BT#30							
12		4-20.4	4-28.8	4-31.0																			
24		36-01.3	35-59.8	26-00.1	V	9R	351	218	279/25	228	V					BT#24							
56		4-30.4	4-29.8	4-31.0																			
27		36-11.1	36-09.6	26-09.9	V	7R	353	216	269/29	218	V					BT#232							
40		4-30.4	4-29.6	4-31.0																			
30		26-21.2	26-19.4	36-19.9	V	4R	356	218	266/18	220	V					BT#213							
24		4-26.3	4-29.4	4-31.0																			
32		36-31.3	26-29.4	36-30.1	359	2R	357	225	246/05	260	V					BT#25 24 A14 25 #25							
09		4-30.2	4-28.3	4-30.9																			
37		26-35.2	26-34.0	36-34.0	176	4L	180	242	238/29	216	V					BT#26 25							
14		4-18.2	4-17.2	4-19.0																			
38		36-28.8	36-27.2	36-27.5	179	5L	184	243	210/18	225	V					BT#26							
51		4-17.2	4-16.4	4-18.1																			
40		36-20.8	26-19.2	36-19.5	180	6L	186	247	251/21	214	V					BT#27							
53		4-17.1	4-16.2	4-18.0																			
42		36-11.3	36-09.7	36-10.0	V	9L	189	221	274/25	222	V					BT#28							
30		4-17.0	4-16.4	4-18.0																			
46		36-01.3	35-59.4	25-59.9	V	8L	188	224	271/21	225	V					BT#29							
10		4-17.0	4-16.2	4-18.0																			
V48		35-51.4	35-49.7	35-50.0	179	9L	188	222	278/24	226	V					BT#30 Q=4							
57		4-17.0	4-16.2	4-18.1																			

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		4 OF	
TIME	N/S E/W	#1	VF	VF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS					
1051	N	35.41.4	35.39.6	35.39.9	180	9L	189	220	277/37	219	1,000					BT#31					
42	W	4.16.9	4.16.3	4.18.0																	
51		35.31.5	35.29.6	35.29.9	179	10L	185	228	284/42	222	V					BT#32					
23		4.16.9	4.16.0	4.18.0																	
65		35.28.3	35.26.3	35.26.8					286/44		V					BT#33					
12		4.16.9	4.16.3	4.18.0												4/4/34					
58		25.22.8	25.20.4	25.21.2	008	10R	358	214	284/45	224	V					BT#34					
13		4.05.1	4.04.5	4.06.2												4/4/34					
1101		25.43.9	25.41.6	25.42.3	360	10R	350	215	282/39	225	V					BT#35					
20		4.04.0	4.02.9	4.05.0																	
03		35.51.6	35.49.3	35.50.0	V	V	V	218	281/34	222	V					BT#36 Q=4					
28		4.04.0	4.02.7	4.05.0																	
06		36.01.6	35.59.1	36.00.0	V	9R	351	220	272/40	229	V					BT#37					
10		4.04.0	4.02.7	4.05.0																	
08		36.11.7	36.09.2	36.10.0	V	V	V	224	272/37	229	V					BT#38					
54		4.04.1	4.02.8	4.05.0																	
11		36.21.7	36.19.1	36.20.0	360	5R	355	222	273/33	228	V					BT#39					
26		4.04.1	4.02.9	4.05.1																	
14		36.21.2	36.28.7	36.29.5	V	8R	352	261	309/41	230	V					BT#40					
15		4.04.3	4.03.0	4.05.1																	
17		36.41.0	36.39.2	36.40.0	355	6R	249	264	285/24	223	V					BT#41					
22		4.04.3	4.03.2	4.05.2												4/4/34					
22		26.42.1	26.39.8	26.40.1	159	6L	165	242	285/27	220	V					BT#42					
03		2.49.5	3.48.8	2.50.5												4/4/34					
24		26.32.1	26.29.6	26.30.0	181	7L	188	240	299/31	227	V					BT#43					
46		2.50.8	3.50.2	2.51.9																	

OCEAN DE VIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DPH/MT		SNR		WAVE KNOTS		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
TIME	INS	#1	VLF	WAVE	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS			
1129	N	36.202	36.17.5	36.17.9	175	8L	182	237	277	229	1,000					BT#44			
43	W	3.50.9	3.50.4	3.52.1															
29		26.12.4	26.09.9	26.10.0	179	102	189	225	281	219	✓					BT#45 Q=4			
44		3.50.9	3.50.2	3.52.1															
22		26.02.3	25.59.7	25.59.8	180	✓	190	228	280	224	✓					BT#46			
30		3.50.7	3.50.3	3.52.0															
35		35.52.6	35.50.1	35.50.0	180	102	190	229	281	225	✓					BT#47			
01		3.50.6	2.50.4	3.52.0															
37		35.42.7	35.40.1	25.40.0	✓	112	191	✓	285	219	✓					BT#48			
27		2.50.5	3.50.3	3.52.0															
29		35.35.0	35.32.6	35.32.2	092	6R	066	261	284	220	✓					BT#49			
27		3.50.0	3.49.8	3.51.5															
42		35.35.2	35.31.8	35.32.4	248	8R	340	196	293	220	✓					BT#50			
03		3.37.8	3.29.0	3.39.4															
14		35.42.9	35.29.8	35.40.0	359	10R	349	202	288	221	✓					BT#51 Q=4			
25		3.37.3	3.36.9	3.38.9															
47		35.52.9	35.49.6	35.50.0	360	✓	350	208	283	219	✓					BT#52			
19		3.37.4	3.37.0	2.39.0															
50		36.02.8	35.59.4	26.00.0	✓	✓	✓	215	277	224	✓					BT#53			
09		3.37.3	3.36.9	2.39.0															
52		36.12.8	36.09.4	26.10.0	✓	8R	352	217	276	223	✓					BT#54 354/184			
56		3.37.3	3.36.9	2.39.0															
55		26.22.8	26.19.3	26.20.0	360	7R	353	214	285	229	✓					BT#55			
41		3.37.3	3.36.9	2.39.0															
58		26.32.8	26.29.2	26.30.0	360	8K	352	205	289	218	✓					BT#56 243/14			
32	✓	3.37.3	3.37.1	3.39.1															

OCEAN DEVRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO					TRACK				FROM		TO		DATE		6 OF	
TIME	N/S E/W	#1		VF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS					
1201	W	36-43.2		36-40.0	36-40.3	260				232		1,000					PT#57					
22	W	3-37.3		3-26.6	3-39.1					18							A/H 180 #58					
05		36-42.3		36-28.9	36-29.3	132	0	132	238	37	211	V					PT#58					
30		3-25.0		3-24.7	3-26.9					21							A/H 180					
07		36-32.9		36-29.3	36-29.9	180	9L	189	234	34	225	V					PT#59					
54		3-24.0		3-24.0	3-26.0																	
10		36-23.1		36-19.4	36-20.0	V	V	V	V	280	228	V					PT#60					
26		3-23.9		3-24.0	3-26.0					27												
13		26-13.1		26-09.7	26-10.0	V	V	V	226	273	228	V					PT#61					
02		3-22.9		3-22.8	3-26.0					27												
15		36-03.5		35-59.7	36-00.3	V	V	V	222	277	219	V					PT#62					
40		2-23.8		3-22.7	3-26.0					35							PT#63					
16		35-53.1		35-49.1	35-49.8	V	112	191	216	286	223	V					PT#64					
28		3-23.8		3-23.8	3-26.0					45												
21		35-43.3		35-39.4	35-40.0	V	V	V	232	292	219	V					PT#65					
03		3-23.7		3-23.9	3-26.0					48							A/H 180 #66					
23		35-33.4		35-29.4	35-30.0	V			237	295	220	V					PT#66					
36		3-23.7		3-23.7	3-26.0					47							PT#67					
28		35-43.5		35-39.0	35-40.0	006	11R	35	205	284	220	V					PT#68					
42		3-11.4		3-11.4	3-12.7					40							PT#69					
31		35-53.5		35-49.1	35-49.9	260	12R	348	266	281	224	V										
36		3-10.7		3-10.3	3-13.0					46												
34		36-03.7		35-59.4	36-00.0	V	12R	V	212	273	220	V										
26		3-10.7		3-10.4	3-12.0					45												
19	V	26-12.7		26-09.1	26-10.0	V	10R	350	217	267	222	V										
19		3-10.7		3-10.4	3-12.0					38												

OCEANDEVON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUINO					TRACK			FROM			TO		DATE		Z OF	
TIME	N/S ENG	#-1	VF			TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS					
1240	U	26-23.8	26-19.0	36-20.0	3-12.0	260	11R	349	216	279/43	231	1100					PT#70					
102	W	3-10.8	3-10.5	3-12.0		V	10R	350	208	281/28	232	V					PT#71	080/22				
42		36-33.9	36-29.1	36-30.0	3-12.1	355			211	277/39	220	V					PT#72	PT#72				
45		36-44.0	36-29.2	36-40.0	3-13.1	175	9L	184	217	271/34	215	V					PT#73	PT#73				
45		3-10.8	3-10.9	3-13.1		180	V	189	215	282/34	210	V					PT#74	PT#74				
50		36-46.2	36-41.7	36-39.7	2-00.6	V	10L	190	230	273/43	228	V					PT#75	PT#75				
13		2-58.2	2-58.4	2-00.6		V	V	V	221	268/40	226	V					PT#76	PT#76				
52		36-26.6	36-32.0	36-30.0	3-00.0	V	V	V	232	270/33	222	V					PT#77	PT#77				
56		2-57.4	2-58.3	3-00.0		V	11L	191	232			V					PT#78	PT#78				
55		36-26.8	36-19.3	36-20.0	3-00.0	V	V	V	229	286/50	219	V					PT#79	PT#79				
35		2-57.3	2-58.3	3-00.0		V	V	V	229	290/49		V					PT#80	PT#80				
58		36-16.9	36-12.4	36-10.0	3-00.0	V	V	V	229	290/49		V					PT#81	PT#81				
14		2-57.2	2-58.2	3-00.0		V	V	V	229	290/49		V					PT#82	PT#82				
1300		36-07.0	36-02.3	36-00.0	3-00.0	V	V	V	229	290/49		V					PT#83	PT#83				
56		2-57.1	2-58.2	3-00.0		V	V	V	229	290/49		V					PT#84	PT#84				
04				35-54.4	3-01.4	V	V	V	229	290/49		V					PT#85	PT#85				
46				3-01.4		V	V	V	229	290/49		V					PT#86	PT#86				
04		25-56.6	25-50.9	25-50.0	3-00.6	176	12L	188	229	286/50	219	V					PT#87	PT#87				
16		2-56.9	2-58.1	3-00.6		V	V	V	229	290/49		V					PT#88	PT#88				
06		35-47.7	35-42.7	35-42.0	3-00.1	V	V	V	229	290/49		V					PT#89	PT#89				
31		2-56.3	2-57.7	3-00.1		V	V	V	229	290/49		V					PT#90	PT#90				
20		36-19.4	26-14.2	36-13.6	3-22.5	320	6R	314	198	276/34	224	V					PT#91	PT#91				
35		3-28.4	3-29.7	3-22.5		315	4R	211	199	281/32	229	V					PT#92	PT#92				
123		36-25.7	36-20.6	36-20.0	3-29.1	315	4R	211	199	281/32	229	V					PT#93	PT#93				
05		3-35.1	3-36.6	3-29.1		V	V	V	229	290/49		V					PT#94	PT#94				

OCEANDEVIRON EIGHT 3780/1 (REV 81)

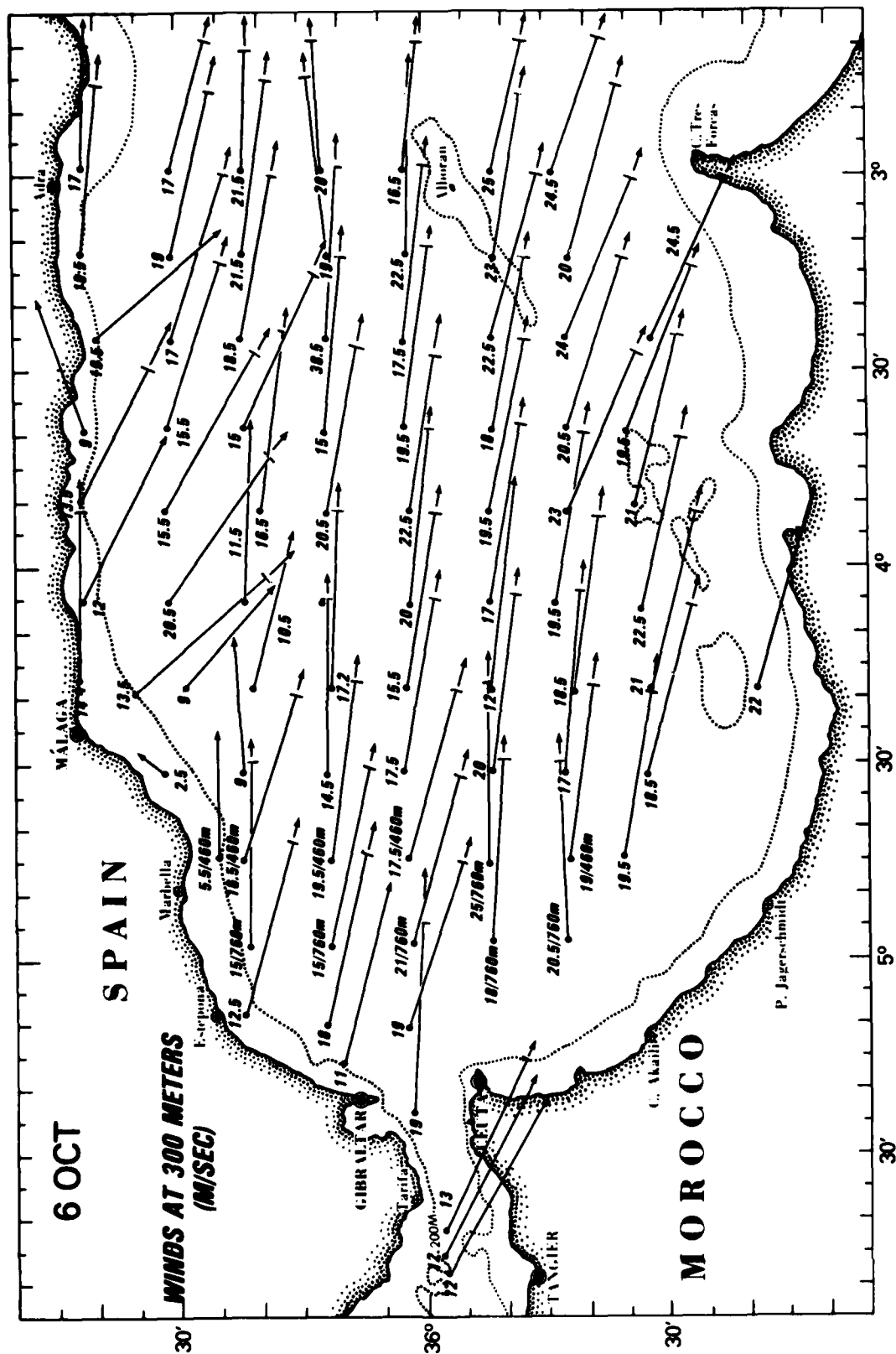
NAVIGATOR'S FLIGHT RECORD

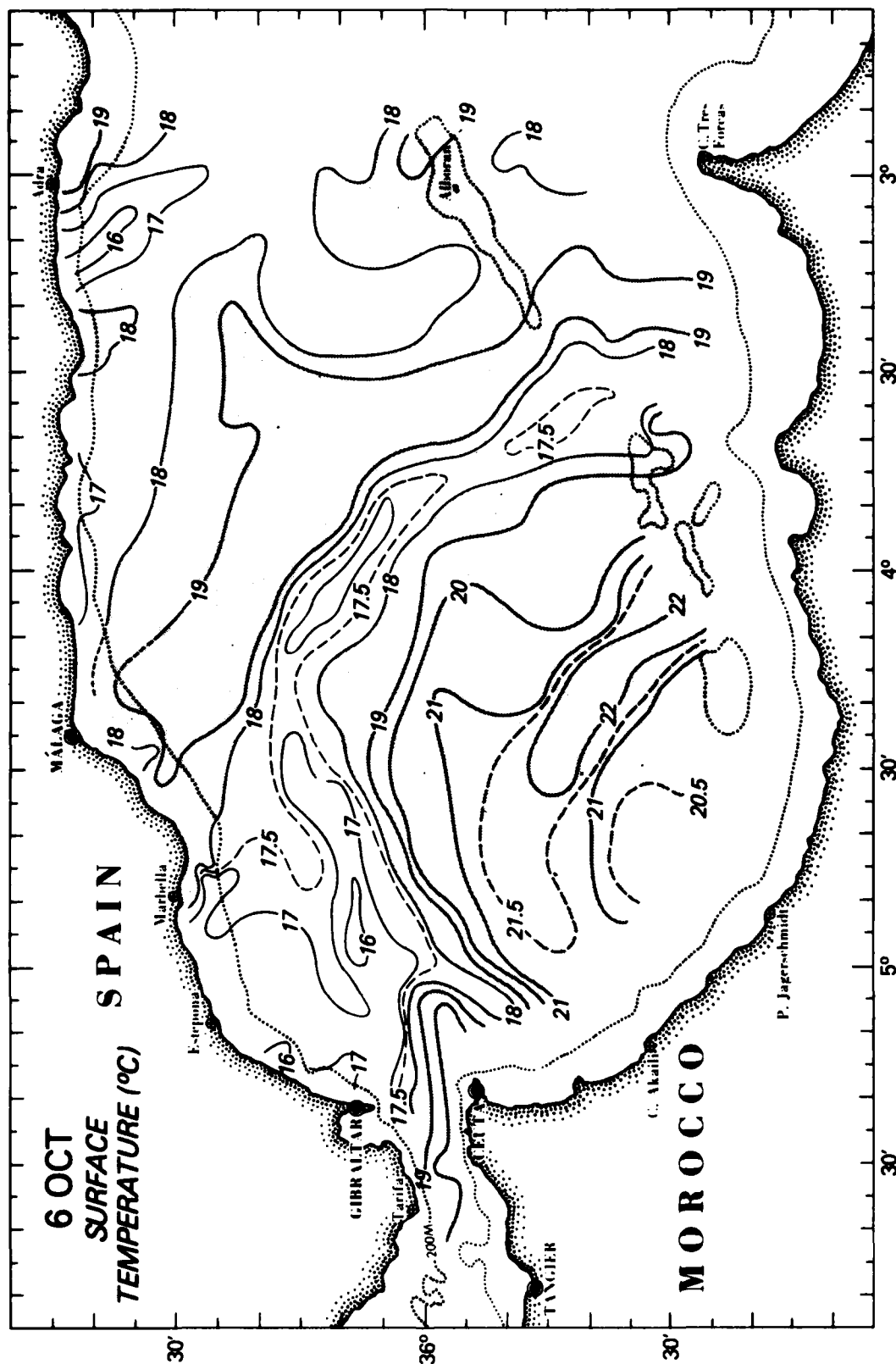
A/C CMDR		NAV		SNR		AIRCRAFT BUINO				TRACK				FROM		TO		DATE		P OF		REMARKS	
TIME	N/S E/W	#1	VF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA									
1324	N	26-35.4	26-29.9	26-29.6	34	32	197	280/29	222	1000												13T#81	
30	W	348.3	350.2	352.4																		A/H DS#82	
30	I	26-35.8	36-29.9	36-300	270	62	199	302/30	227	✓												BT#82	
36		400.8	403.1	405.0																			
33		26-35.9	36-29.9	36-300	✓	42	201	303/30	219	✓												RT#83	
26		4-13.5	4-15.5	4-17.7																		A/H 260T	
26		26-45.9	26-29.5	26-400	002	62	209	214/29	229	✓												ET#84	
41		4-14.0	4-16.8	4-18.2																		A/H DS#85	
45		26-26.0	26-19.4	26-19.8	224	52	212	270/29	233	✓												BT#85	
45		4-29.7	4-27.0	4-44.0																		A/H DS "A"	
48										✓												UPDATE VLF TP	
51																						UNCL	
52		36-07.3	26-00.8	26-00.9	264	0	183	267/37	224	✓												A/H DS#86	
26		454.9	459.2	459.4																			
37		26-06.5	26-00.1	255.9	260	32	183	279/34	232	✓												42" (UNCL ACC	
38		5-15.1	5-19.2	5-19.8																		< 25 NM)	
1404			35-56.6	35-56.2	266	32	198	286/24	230	✓												BT#86	
110				5-42.2																			
04				355.61				299/24		✓												BT#87	
58				546.0																			
02				355.60	270	32	199	299/24	222	✓												BT#88	
26				548.3																			
118		26-03.2	35-56.9	35-56.2	✓	✓	213	290/13	228	✓												A/H DS 260/40	
29		6-29.2	6-43.4	6-44.4																		C-9	
1425		26-21.4	26-15.1	26-14.4			226		240	✓												PMO RV'S	
1447		654.0	658.2	659.4																			

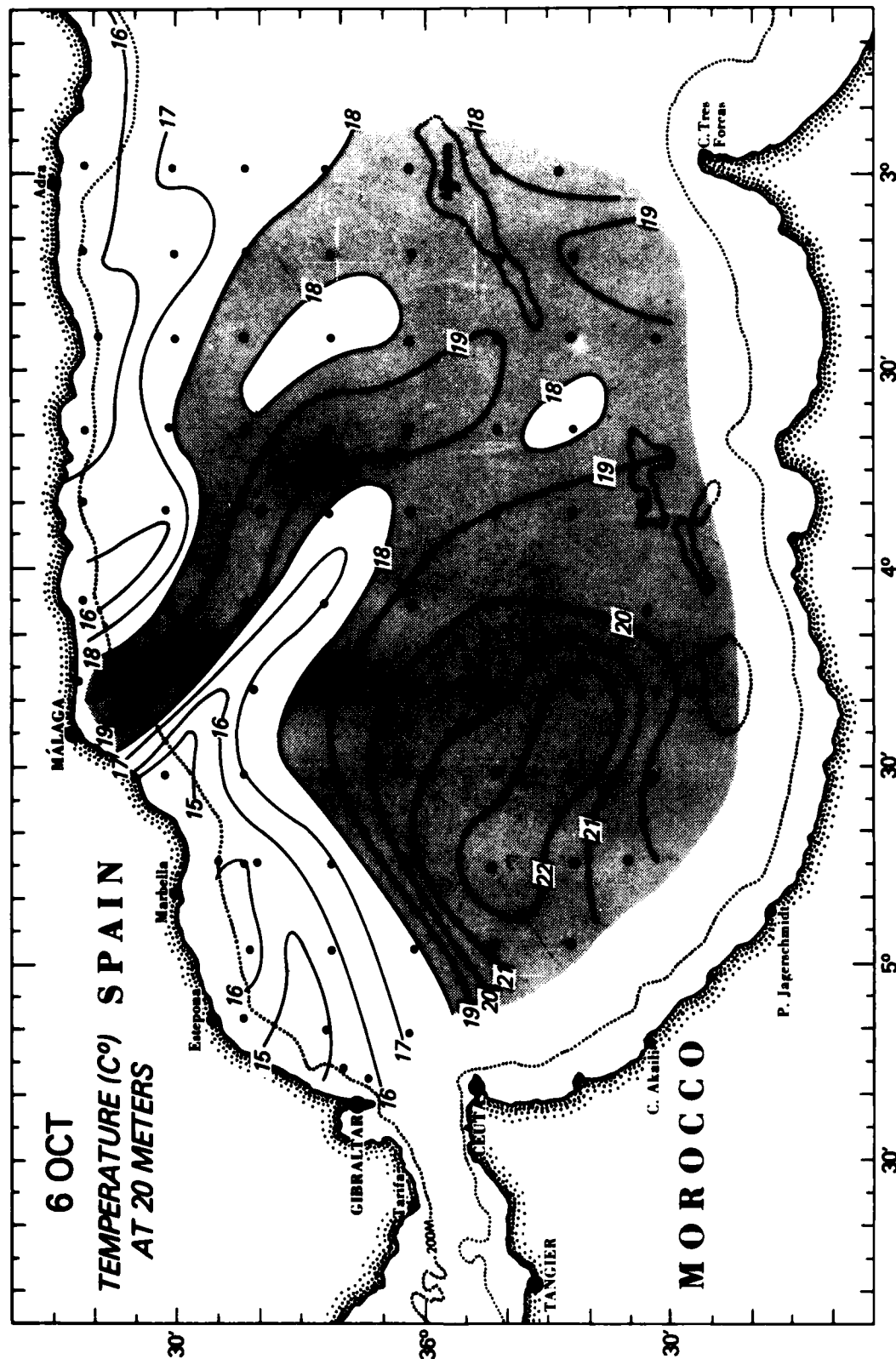
OCEAN DEVIATION EIGHT 3780/3 (REV 81)

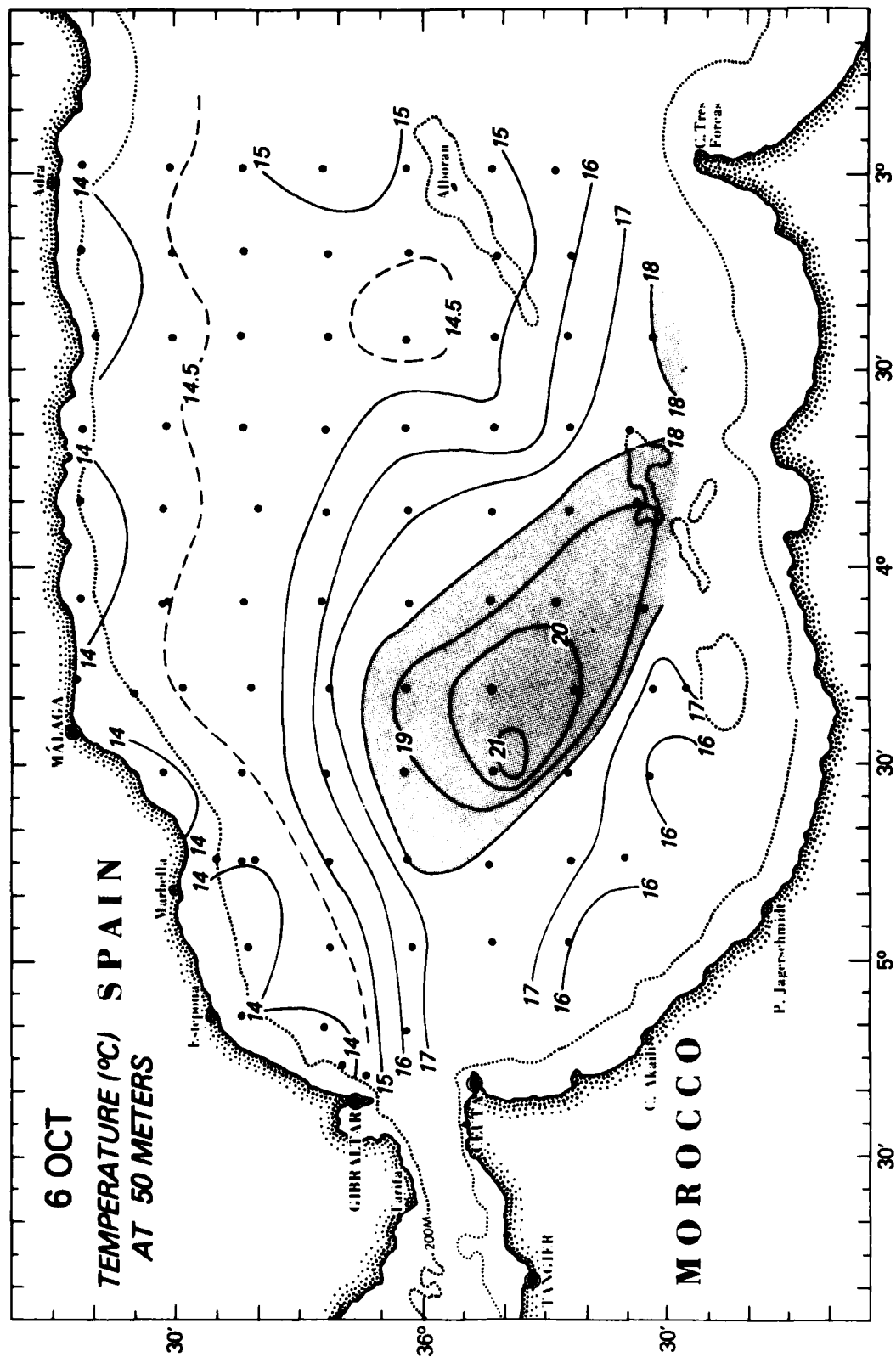
1447

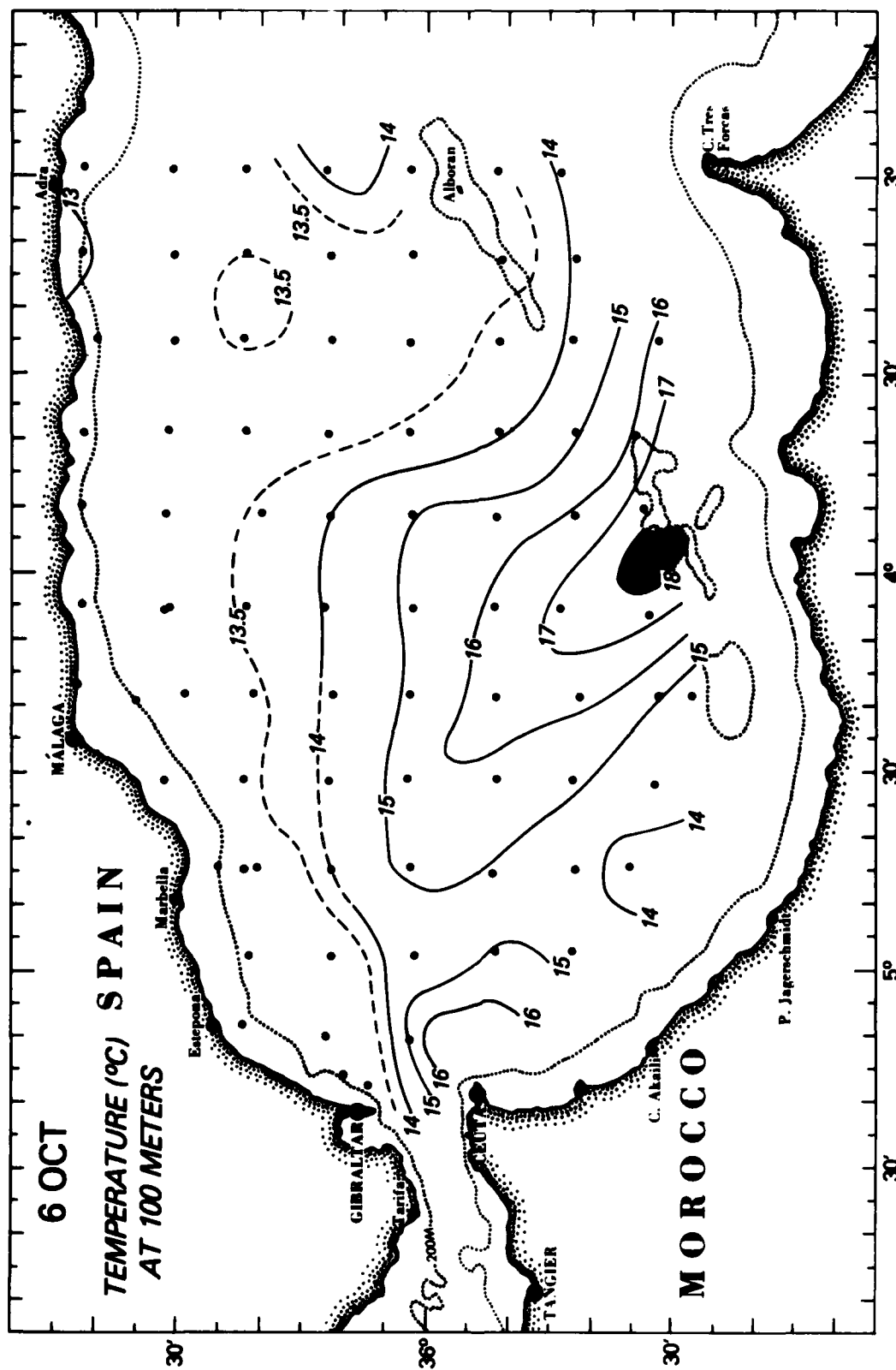
LAND 1500, 1500, 1500

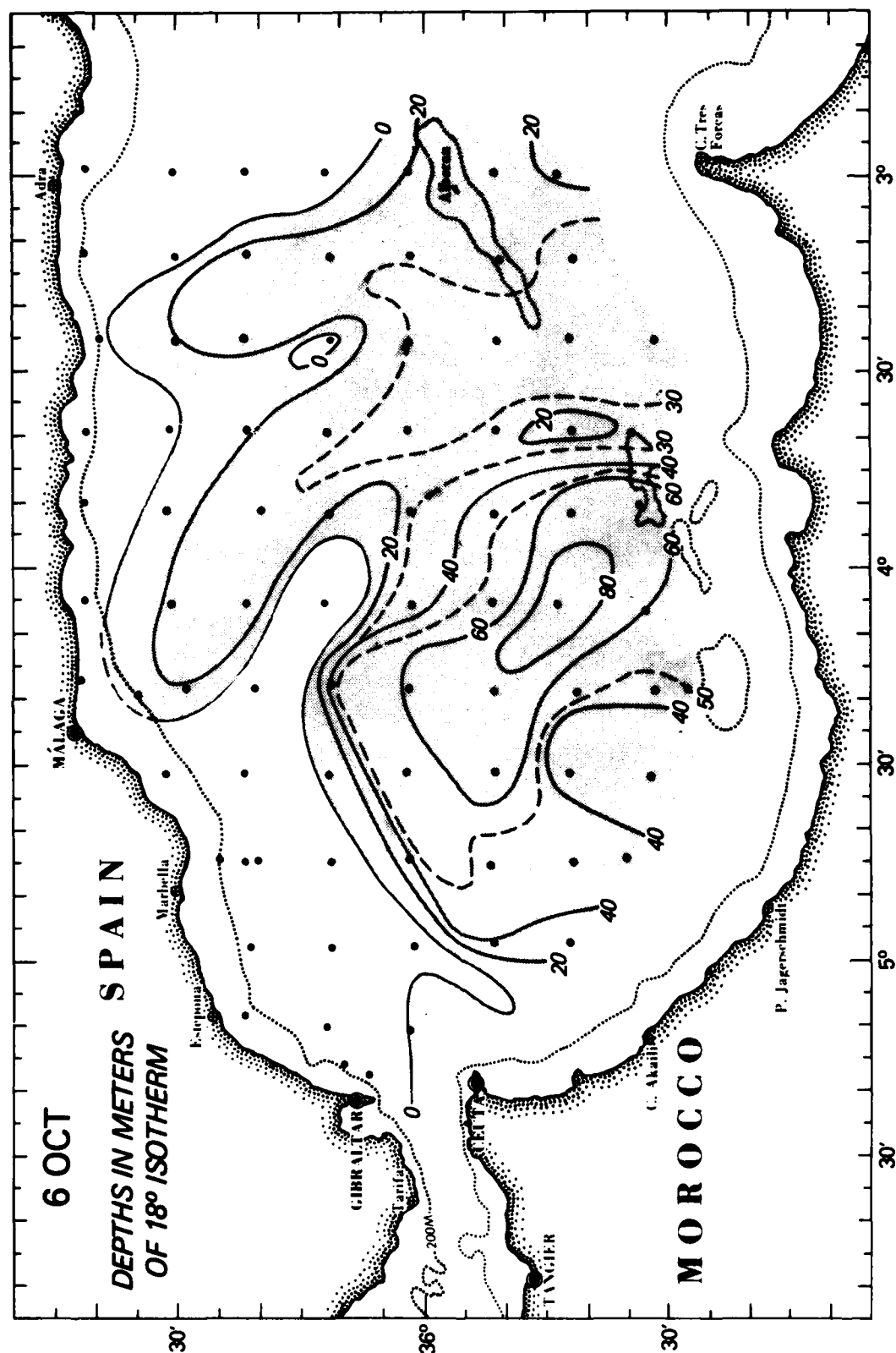












9 OCTOBER 1982

UNO ACCURACY OF INS #2 Ave. 0.5 NM. —
Ave. 0.7 NM.

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	NAV. JG	DOPT	SNR	AIRCRAFT BUNO				TRACK				FROM	TO	DATE	OF
TIME	INSTR	HAZARD	FASS	DATE	HAZ	TC	DA	TH	GS	WIND	TAS	ALT	DIST	ETA	REMARKS
	EMV	TY	#	ULF	LTU	HAZ				DIR/VEL			+TOT	ATA	
0905															#2 ACCEPT INS
0906															ENGINE START
0907															TAXI
0918															T/O
0920	N	36-31.7	36-32.4	6-33.3	36-31.7	237	2L	237	278		370	5000			13 DME TACAN NAVL
0928		6-33.5	6-33.3	6-33.3	6-33.5	164	162	162	308	289	293	✓			A/H
0932		6-39.2	6-38.8	6-39.4	6-39.4	40.6	2R	87	267		270	✓			A/H → C
0943						0785			249						A/H → B NAT #1
0947						35-58.8			249	269					
0951						5-27.4	078.5	079	249	208	242	5000			NOT U. 16302 452.3
0958		24	26									3000			UPDATE POST
1000		26-21.7	26-25.4	4-41.8	26-24.3	164	2R	162	224	093	275	1000			PAVILLET
1005		4-40.3	4-41.8	4-46.1	4-46.1	✓				200		✓			#1 UDT → #2
1002			36-19.7	36-18.6	36-18.6										INS #1
1003			4-42.0	4-44.1	4-44.1										30° OFF TUNNEL
1006															20° OFF CG

I think this should read 4.32.0 (hr)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DODART		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF													
LCDR MARTINELLI		ENUS		DATE		HR		RELIANCE		TH		GS		WIND DIR/VEL		TAS		ALT		DIST + TOT		DIST REM		ETE		ETA ATA		REMARKS	
TIME	N/S E/W	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS													
1006	N		36.046	26.03.4	164	42	168	234	283	225	1,000					Posit													
350			4.379	4.38.9				229	267	218	✓					Posit													
09			35.54.7	35.52.5	✓											A/H													
15			4.346	4.35.5				10			✓					SE #1													
15			36.51.5	35.50.6	332											OR 12.11													
23			4.328	4.34.4												SR #1													
25			35.45.7	35.45.0	362	412	348	181	203	187	✓					#2													
19			4.31.1	(4.30.0)				176	285	184	✓					#3													
26			35.48.8	35.48.0	345				271	183	✓					#4													
19			4.220	4.33.8	✓	412	341	178	274	183	✓					#5													
27			35.52.3	35.51.5	✓				278	183	✓					#6													
31			4.22.9	4.34.9	✓				278	183	✓					#7													
28			35.54.6	35.53.8	✓				278	183	✓					#8													
20			4.22.7	4.35.6	✓				278	183	✓					#9													
29			35.57.3	35.56.4	344	✓	340	177	278	183	✓					#10													
46			4.346	4.36.5	✓				278	183	✓																		
30			36.00.1	35.59.3	✓				278	183	✓																		
17			4.35.6	4.37.5	✓				278	183	✓																		
31			26.03.6	26.02.8	✓				278	183	✓																		
31			4.26.8	4.38.7	✓				278	183	✓																		
32			36.06.0	36.05.2	✓				278	183	✓																		
23			4.37.5	4.39.5	✓				278	183	✓																		
33			26.08.8	36.07.9	✓				278	183	✓																		
24			4.38.4	4.40.4	✓				278	183	✓																		
34			26.11.7	36.10.9	✓	212	342	175	278	183	✓																		
27			4.39.5	4.41.4	✓				278	183	✓																		

OCEANDEVON EIGHT 3760/1 (REV 81)

2 Prob. 3324 R

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUONO				TRACK				FROM		TO		DATE		OF	
TIME	M/S E/M			#2	VLF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS				
1005	NO			36-139	36-14.6	344	2R	342	184	258 03	186	1000					#11				
1010	NO			442.5	4.40.5																
				#2	#2																
36				36-17.7	36-17.0	344	0	344	189	100 01	190	1000					#12				
37				441.6	443.6																
38				36-20.5	36-19.9	V	1L	345	187	060 04	186	V					#13				
39				442.6	4.44.5																
38				36-23.1	36-22.8	V	2L	346	184	049 05	184	V					#14				
39				443.6	445.6																
40				36-26.2	36-25.6	V	1R	343	186	250 01	186	V					#15				
41				444.6	446.5																
42				36-29.8	36-29.2												#16	ATL			
43				445.9	447.7												AXPM				
46				36-32.8	36-32.6	162	3L	165	201	248 09	202	200'					#1				
47				445.1	446.7																
48				36-20.4	36-19.4	164	4L	168	200	274 17	197	V					Posit				
49				442.8	444.4																
50				36-16.7	36-15.4	165	6L	171	198	263 20	196	V					#2				
51				441.5	442.9																
52				36-12.9	36-11.6	V	V	V	199	271 23	195	V					Posit				
53				440.3	441.7																
54				36-08.5	36-07.2	V	7L	172	V	271 24	193	V					#3				
55				438.9	440.2																
56				36-05.1	36-03.7	165	6L	171	200	273 22	193	V									
57				437.8	439.0																

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		REMARKS		OF	
TIME	N/S E/W	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA									
1054	12	36.605	35.59.1	165	62	171	199	273/20	194	200'										POEIT			
	12	4.36.3	4.37.4																				
55		35.57.2	35.55.7																				
27		4.35.2	4.36.3																				
57		35.52.1	35.50.6																				
03		4.33.4	4.34.5																				
57		35.49.2	35.47.7	165	62	171	202	273/22	196														
56		4.32.5	4.33.6																				
1107		35.46.1	35.44.8	344	2R	342	230	300/10	240	1300'													
26		4.31.1	4.32.6																				
09		35.53.6	35.52.4	345		343	238	298/11	245														
25		4.33.6	4.35.1																				
10		35.56.8	35.55.6																				
16		4.34.8	4.36.2																				
12		36.05.7	36.04.5	344	1R	342	229	303/10	240														
41		4.37.7	4.39.3																				
14		36.12.6	36.11.4	345	0	345	232	023/0	234														
33		4.40.0	4.41.7																				
16		36.20.3	36.19.2	344	1L	345	242	114/06	240														
35		4.42.6	4.44.3																				
18		36.27.6	36.26.6																				
27		4.45.0	4.46.9																				
25		36.24.1	36.22.5	163	1L	164	241	218/03	244	1700'													
109		4.42.7	4.45.6																				

OCEANDEVRON EIGHT 3760/1 (REV 811)

[illegible]

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV	SNR		AIRCRAFT BUINO		TRACK		FROM		TO		DATE	5 OF			
TIME	N/S E/W	#	U/L/F	H	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	LEPT	ETA ATA	REMARKS
1151	0		36.27.3	36.26.4					152								A/H C ✓
15	0		4.43.8	4.46.8	342	12	343	248	004	240	2600						PSIT
			36.20.7	36.20.0						NS							NOT PIER
			4.51.5	4.52.8													36.20.2
✓ 58			36.22.2	36.25.9					267								4.52.3
56			4.44.5	4.46.7	163	42	167	237	015	230	5700						PSIT
1201			36.18.9	36.17.4					272		5700						PSIT
102			4.41.6	4.43.7	164	42	168	261	017	256	✓ 5700						PSIT
03			36.08.8	36.07.4					270		✓						PSIT
17			4.38.3	4.40.2	164	52	169	225	018	220	✓						PSIT
05			36.12.9	36.01.4					287		✓						PSIT
12			4.36.3	4.38.2	164	52	169	226	018	220	✓						PSIT
07			35.55.6	35.52.5					280		✓						PSIT
39			4.32.3	4.35.2	164	52	169	237	020	230	✓						A/H Inm
09			35.47.3	35.43.9					258		✓						PSIT 1.8.5.4
50			4.29.5	4.32.5	162	42	166	239	019	237	✓						PSIT 1.8.5.4
18			35.43.3	35.42.0					287		✓						PSIT
52			4.28.5	4.30.3	344	20	342	226	009	233	✓						PSIT
20			35.50.0	35.48.8					278		✓						PSIT
45			4.30.9	4.32.6	344	20	342	228	009	233	✓						PSIT
22			35.57.5	35.56.2					307		✓						PSIT
42			4.33.4	4.35.1	344	20	342	231	010	240	✓						PSIT
24			36.04.6	36.03.3					302		✓						PSIT
42			4.35.9	4.37.6	344	20	342	226	009	234	✓						PSIT
✓ 25			36.	36.													PSIT 57.4
50			4.	4.													PSIT 57.4

OCEAN DEVRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV	EWS		COMITE	SNR	AIRCRAFT BUINO				TRACK				FROM				TO		DATE		2 OF	
TIME		N/S	E/W		VLF	#2	TC	DA	TH	GS	WIND	DIR/VEL	TAS	ALT	DIST	+TOT	DIST	REM	ETE	ETA	ATA	REMARKS		
1206		N			36.12.5	36.11.1						294												
535		S			4.38.5	4.40.3	345	1R	344	225		006	230	5100								PSIT		
53					36.18.8	36.18.5						323										PSIT		
53					4.41.1	4.42.8	345	1R	344	224		010	233									PSIT		
51					26.30.4	36.26.7						332										PSIT		
17					4.45.9	4.45.6	342	1R	341	220		017	230									PSIT		
33					26.27.6	36.25.9						303										PSIT		
34					4.47.0	4.48.8	153	2L	156	229		013	220									PSIT		
35					36.17.5	36.17.7						301										PSIT		
36					4.43.4	4.45.2	164	3L	167	229		015	220									PSIT		
37					36.12.6	36.10.8						262										PSIT		
20					4.41.0	4.40.8	164	3L	167	231		014	230									PSIT		
39					36.05.1	36.03.3						270										PSIT		
22					4.38.4	4.40.2	164	4L	168	230		014	226									PSIT		
41					25.58.4	35.56.6	164	V	V	201		270	270	5000								PSIT		
10					4.35.9	4.27.9						15										PSIT		
42					35.50.1	35.48.2	V	V	V	V		274	230									PSIT		
24					4.32.9	4.35.0						17										PSIT		
45					35.44.3	35.42.4	V	V	V	229		269	273									PSIT		
00					4.30.9	4.33.0						15										PSIT		
50					35.48.9	35.47.3								200'								PSIT		
18					4.29.4	4.32.0																PSIT		
56					35.48.6	25.47.0	324			170		206										PSIT		
40					4.28.9	4.31.9						11										PSIT		
57					35.50.1	35.49.0																PSIT		
24					4.29.8	4.32.0																PSIT		

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV/ALC Depart		SNR		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		P of	
TIME	N/S E/W	VLF	#1	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS		
1258	N	35.533	35.515	275			40	200/16	183	260'					NOT #3		
1300	N	4.327	4.356				188	272/15	190	✓					NOT #4		
1300	N	35.551	35.539				182	272/15	183	✓					NOT #5		
1300	N	4.321	4.361				188	272/20	183	✓					NOT #6		
1301	N	35.587	35.577				188	272/20	189	✓					NOT #7		
1302	N	4.336	4.353				188	272/20	189	✓					NOT #8		
1304	N	36.025	36.012				188	272/20	189	✓					NOT #9		
1305	N	4.317	4.338				188	272/20	189	✓					NOT #10		
1306	N	36.073	36.059	002			188	272/20	189	✓					NOT #11		
1307	N	4.300	4.323	016			188	272/20	189	✓					NOT #12		
1308	N	36.099	36.087	016			188	272/20	189	✓					NOT #13		
1309	N	4.398	4.329	016			188	272/20	189	✓					NOT #14		
1310	N	36.142	36.126	300			188	272/20	189	✓					NOT #15		
1311	N	4.319	4.378	300			188	272/20	189	✓							
1312	N	36.182	36.166	335			188	272/20	189	✓							
1313	N	4.368	4.402	335			188	272/20	189	✓							
1314	N	36.207	36.192	303			188	272/20	189	✓							
1315	N	4.404	4.437	303			188	272/20	189	✓							
1316	N	36.229	36.223	340			188	272/20	189	✓							
1317	N	4.418	4.453	340			188	272/20	189	✓							
1318	N	36.270	36.257	330			188	272/20	189	✓							
1319	N	4.438	4.473	330			188	272/20	189	✓							
1320	N	36.270	36.257	330			188	272/20	189	✓							
1321	N	4.438	4.473	330			188	272/20	189	✓							

NAVIGATOR'S FLIGHT RECORD

[illegible]

OCEANDEVRON EIGHT 3760/1 (REV 01)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DEPT		SNR		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		OF	
LTJG HARRIS		FNS 605726		UN#2		UN#2		UN#2		UN#2		UN#2		UN#2		UN#2	
TIME	N/S	E/W	VLF	UN#2	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS	
1346	N		35.52.2	35.50.1	345	4R	341	234	246	233	10,000					PSIT	
1500	W		4.33.2	4.33.9	345	2R	343	235	277	239						PSIT	
48			36.02.8	36.01.5	345	2R	343	235	271	238						PSIT	
10			4.35.5	4.35.7	345	2R	343	235	271	238						PSIT	
49			36.07.3	36.06.1	345	2R	343	235	271	238						PSIT	
23			4.36.9	4.37.3	345	2R	343	235	271	238						PSIT	
50			36.12.5	36.11.4	345	2R	343	235	271	238						PSIT	
50			4.38.7	4.39.1	345	2R	343	235	271	238						PSIT	
52			36.17.2	36.16.2	345	2R	343	235	271	238						PSIT	
02			4.40.3	4.40.7	345	2R	343	235	271	238						PSIT	
55			36.27.8	36.26.7	345	2R	343	235	271	238						PSIT	
03			4.43.7	4.44.2	345	2R	343	235	271	238						PSIT	
57			36.28.3	36.26.7	345	2R	343	235	271	238						PSIT	
50			4.49.8	4.50.1	345	2R	343	235	271	238						PSIT	
59			36.22.9	36.21.5	345	2R	343	235	271	238						PSIT	
16			4.47.4	4.47.8	345	2R	343	235	271	238						PSIT	
1401			36.15.9	36.14.5	345	2R	343	235	271	238						PSIT	
05			4.44.9	4.45.5	345	2R	343	235	271	238						PSIT	
03			36.08.0	36.06.6	345	2R	343	235	271	238						PSIT	
08			4.42.1	4.42.7	345	2R	343	235	271	238						PSIT	
05			35.57.9	35.58.6	345	2R	343	235	271	238						PSIT	
12			4.39.2	4.40.0	345	2R	343	235	271	238						PSIT	
07			35.50.4	35.49.1	345	2R	343	235	271	238						PSIT	
40			4.35.5	4.36.7	345	2R	343	235	271	238						PSIT	
10			35.41.7	35.40.7	345	2R	343	235	271	238						PSIT	
10					196	4L		230								A/H	

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	NAVLTJG DWANNT	SNR	MR KERLING	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	TO	DATE	REMARKS	OF
LCDR HARTZELL	ENJ WHITE	#2	MR KERLING	149667				05-1-83	#2	LEAT	LEAT	LEAT	9 OCT 82		11
TIME	N/S	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE	WAVE
1416	10		35.45.4	35.44.6		274									
1417	5		4.30.7	4.32.6	346	010	227	3800						PSIT	
1418	1		35.55.0	35.54.1		224									
1419	1		4.33.7	4.35.7	345	009	228							PSIT	
1420	1		36.01.3	36.00.6		275									
1421	1		4.25.5	4.37.9	345	006	222							PSIT	
1422	1		36.08.0	36.05.4		322									
1423	1		4.32.1	4.39.6	345	007	227							PSIT	
1424	1		36.10.6	36.09.8		327									
1425	1		4.38.7	4.41.1	344	006	226							PSIT	
1426	1		36.15.3	36.14.0		327									
1427	1		4.40.2	4.42.5	344	009	226							PSIT	
1428	1		36.26.9	36.26.3		351								A/H B	
1429	1		4.44.0	4.46.8	344	010	225							PSIT	
1430	1		36.30.8	36.30.4											
1431	1		4.52.1	4.53.3				3100						1401 PIER	
1432	1		36.26.0	36.25.9		287								DEPART 3630.2/4.33	
1433	1		4.46.4	4.46.7	163	014	240	3100						PSIT	
1434	1		36.17.2	36.16.9		298									
1435	1		4.43.3	4.43.5	165	016								PSIT	
1436	1		36.10.9	36.10.6		295									
1437	1		4.41.2	4.41.3	164	013	236							PSIT	
1438	1		36.02.9	36.02.6		288									
1439	1		4.38.6	4.38.6	164	016	233							PSIT	
1440	1		35.56.4	35.55.9		275									
1441	1		4.36.4	4.36.3	165	018	233							PSIT	

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DUFFY	SNR	AIRCRAFT BUNO		TRACK		FROM		TO		DATE	LT OF
UDR HARTLELL		ENS WHITE	MAKERLINE	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	CERT	REMARKS
TIME	N/S E/W	VLF	TC	DA									
1444	N	35504	165	46	169	273/19	220	3100					POST
08	W	4242	165			201/19	226						POST
45		35459	165			275/17							POST
19		4229				287/23	195	250'					NOT #1
46		35423											NOT #2
10		4217											NOT #3
51		35480	029	6K	023								NOT #4
20		4221											NOT #5
51		35492											NOT #6
54		4307											NOT #7
54		35510	300			285/25	190						NOT #8
22		4269				287/26	184						NOT #9
58		35510	277			284/26	190						NOT #10
07		4265				277/23	185						NOT #11
59		35537	304			271/24	179						NOT #12
00		4374											NOT #13
1500		35556	044										NOT #14
01		4277											NOT #15
00		35568	035										NOT #16
36		4260											NOT #17
01		36004											NOT #18
53		4324											NOT #19
62		36022	045										NOT #20
43		4211											NOT #21
03		36047	023										NOT #22
30		4287											NOT #23

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	NAV LOG	DEPART	SNR	WV	KLM	DA	TH	GS	WIND DIR/VEL	TRACK			FROM	TO	DATE	REMARKS
										TAS	ALT	DIST + TOT	DIST REM	ETE	ETA	
1504	N	36-07.8	36-07.2	005				190	264	185	600'					NOT #10
28	W	4-27.5	4-26.3					161	23	185	✓					NOT #11
06		36-12.4	36-11.2	295				175	258	189	✓					NOT #12
55		4-33.5	4-32.4					169	31	182	✓					NOT #13
08		36-16.9	36-15.6	340				175	254	184	✓					NOT #14
42		4-27.0	4-25.8					177	24	180	✓					NOT #15
10		26-19.7	26-18.6	305				181	265	183	✓					NOT #16
26		4-42.9	4-41.4						11							A/H 20 MINUTES
11		36-22.8	36-21.7	340												LAND
54		4-44.5	4-43.8													WATER
13		36-26.3	36-25.3	335												TAXI
17		4-47.2	4-46.2													
✓14		36-20.8	36-20.1	355												
16		4-48.2	4-47.1													
1527																
1539																
1550																
1556		36-25.2	36-25.0	221	22	22	22	262	500							TIO
		4-34.6	4-34.0	221	22	22	22	262	010	230	5000					NAVL
1604		35-57.3	35-57.8	258	12	25	25	253	272	259	5000					A/H
1602	✓	5-03.4	5-02.5	258	47	26	26	253	273	251	✓					ET #92
08		35-56.4	35-56.5	259	47	26	26	253	13							
		5415	540.7													

OCEAN DE VIRON EIGHT 3750/1 (REV 81)

11 OCTOBER 1982

A/C CMDR	TIME	N/S	NAV	EST	DEPART	SNR	MIL	REMARKS	AIRCRAFT	BUNO	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS
CLIC + HND	#1		VLF	#2														INS ACCEPTABLE
0831	N																	ENG
0902	N																	TAXI
0905																		TOT
0915																		WAT
0930																		WAT
0940																		WAT
0950																		WAT
1000																		WAT
1010																		WAT
1020																		WAT
1030																		WAT
1040																		WAT
1050																		WAT
1100																		WAT
1110																		WAT
1120																		WAT
1130																		WAT
1140																		WAT
1150																		WAT
1200																		WAT
1210																		WAT
1220																		WAT
1230																		WAT
1240																		WAT
1250																		WAT
1300																		WAT
1310																		WAT
1320																		WAT
1330																		WAT
1340																		WAT
1350																		WAT
1400																		WAT
1410																		WAT
1420																		WAT
1430																		WAT
1440																		WAT
1450																		WAT
1500																		WAT
1510																		WAT
1520																		WAT
1530																		WAT
1540																		WAT
1550																		WAT
1600																		WAT
1610																		WAT
1620																		WAT
1630																		WAT
1640																		WAT
1650																		WAT
1700																		WAT
1710																		WAT
1720																		WAT
1730																		WAT
1740																		WAT
1750																		WAT
1800																		WAT
1810																		WAT
1820																		WAT
1830																		WAT
1840																		WAT
1850																		WAT
1900																		WAT
1910																		WAT
1920																		WAT
1930																		WAT
1940																		WAT
1950																		WAT
2000																		WAT
2010																		WAT
2020																		WAT
2030																		WAT
2040																		WAT
2050																		WAT
2100																		WAT
2110																		WAT
2120																		WAT
2130																		WAT
2140																		WAT
2150																		WAT
2200																		

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	NAV LTG COPIES	SNR	FUELING		AIRCRAFT BUNO		TRACK		FROM		TO		DATE	REMARKS
TIME	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA
0456	26.26.3	36.26.6	28.26.2	181	2R	179	248	125/9	254	6,000				START TRACK
17	4.42.1	4.42.6	4.42.1											
1001	26.15.5	36.16.5	26.15.4	✓	✓	✓	✓	✓	✓	✓				RECEIT
00	4.42.9	4.42.4	4.42.9											
02	26.07.1	36.07.3	26.07.0	180	2R	178	250	109/7	255	✓				RECEIT
00	4.44.0	4.42.7	4.44.0											
05	35.66.6	35.56.8	35.56.4	✓	✓	✓	✓	✓	✓	✓				RECEIT
20	4.44.0	4.43.9	4.44.0											
08	35.46.3	35.46.4	35.46.0	✓	✓	✓	✓	✓	254	✓				RECEIT
00	4.42.9	4.44.0	4.44.0											
10	25.28.1	25.28.2	25.27.8							✓				RECEIT
00	4.43.9	4.44.0	4.44.0							✓				A/H 120T
17	25.23.4	25.22.5	25.22.9	255	1L	256	280	070/06	284	1,000				01496
15	4.42.6	4.42.9	4.43.7											SEMI
18	25.29.1	25.29.1	25.28.6							✓				0042
42	4.42.0	4.42.1	4.42.0											
19	25.42.0	25.41.9	25.41.5	260			229	131/20	282	✓				01496
32	4.44.0	4.43.7	4.44.0											#3
20	25.45.2	25.45.1	25.44.8	360	0	268	230	171/2	282	✓				#4
22	4.44.0	4.42.8	4.44.0											
21	25.50.5	25.50.3	25.50.0	360	✓	✓	✓	✓	282	✓				131492
45	4.44.0	4.44.1	4.44.0											#5
23	25.55.6	25.55.2	25.55.0	✓	✓	✓	✓	✓	✓	✓				#6
03	4.44.0	4.44.1	4.44.0											
24	26.00.6	26.00.3	26.00.0	✓	✓	✓	✓	✓	282	✓				01496
12	4.44.0	4.42.9	4.44.0											#7

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTG REPORT		SNR		AIRCRAFT BUJO		TRACK		FROM		TO		DATE		OF	
LDR NAME		ENDS W/ITE		NO		KERRING		OS-1-83 #3		LEAT		LEAT		11 OCT 82		3	
TIME	N/S	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS	
1025	U	26-055	36-05.2	36-04.9	360	2L	007	218	051/7	215	1,000					#8	
40	N	4-44.0	4-41.3	4-44.0													
27		26-10.5	36-15.2	36-09.9	V	1L	001	213	030/8	217	V					#99	
02		4-44.0	4-43.9	4-44.0												#9	
28		26-15.7	36-15.2	36-15.0	V	V	V	217	050/6	218	V					#10	
28		4-43.9	4-43.8	4-43.9													
29		36-20.6	36-20.3	36-20.0	V	V	V	213	040/3	221	V					#100	
50		4-43.9	4-43.8	4-43.9												#11	
31		26-25.8	26-25.2	26-25.1							V					#101 HH	
15		4-44.0	4-43.9	4-44.0												#12	
35		26-20.1	36-28.8	36-29.3	160	2R	158	219	034/10	215	V					RT#102	
06		4-32.1	4-22.3	4-32.2													
39		26-20.8	36-19.9	36-19.9	180	V	178	244	028/15	231	V					RT#103 VLF DR	
25		4-30.8	4-21.0	4-31.0													
40		26-10.8	36-09.6	36-09.8													
02		4-30.5	4-29.8	4-31.0	V	0	180	246	020/3	242	V					RT#104	
42		36-01.1	36-09.5	36-09.0	V	V	V	245	008/02	V	V					RT#105	
25		4-20.7	4-20.0	4-31.0													
44		35-51.1	35-49.8	35-50.0	V	V	V	241	104/02	244	V					RT#106	
53		4-30.7	4-29.9	4-31.0													
47		35-41.3	35-39.7	35-40.0	V	1R	179	247	108/4	V	V					RT#107	
21		4-30.6	4-29.9	4-31.0													
49		35-21.4	35-20.1	35-20.1	V			241	123/5	V	V					RT#108	
50		4-30.6	4-29.8	4-31.0												HH	
53		35-21.4	35-29.6	35-30.1	354	1L	258	243	090/01	242	V					RT#109	
05		4-18.2	4-18.4	4-18.7													

OCEANDEVIRON EIGHT 3760/1 (REV 81)

A/C CMDR	NAV LTG DEPART	SNR	AIRCRAFT BUINO	TRACK	FROM	TO	DATE	OF
TIME	N/S	TIME	TIME	TIME	DIST	DIST	ETA	REMARKS
	EN				TOT	REM	ATA	
1455	N35 41.3	35.40.0	36.0	164	242	1000	1000	BT # 110
1500	4.17.6	4.17.0	36.0	187	243	✓	1000	BT # 111
1505	35.51.3	35.50.0	36.0	180	246	✓	1000	BT # 112
1510	4.17.6	4.16.8	36.0	180	246	✓	1000	BT # 113
1515	36.01.3	36.00.0	36.0	180	246	✓	1000	BT # 114
1520	4.17.6	4.16.7	36.0	180	246	✓	1000	BT # 115
1525	36.11.3	36.10.0	36.0	180	246	✓	1000	BT # 116
1530	4.17.5	4.16.8	36.0	180	246	✓	1000	BT # 117
1535	36.21.3	36.20.0	36.0	180	246	✓	1000	BT # 118
1540	4.17.5	4.16.6	36.0	180	246	✓	1000	BT # 119
1545	36.31.2	36.30.0	36.0	180	246	✓	1000	BT # 120
1550	4.17.5	4.16.5	36.0	180	246	✓	1000	BT # 121
1555	36.40.9	36.38.0	36.0	180	246	✓	1000	BT # 122
1600	4.17.0	4.17.1	36.0	180	246	✓	1000	BT # 123
1605	36.41.0	36.39.4	36.0	180	246	✓	1000	BT # 124
1610	4.03.0	4.04.5	36.0	180	246	✓	1000	BT # 125
1615	36.31.4	36.29.6	36.0	180	246	✓	1000	BT # 126
1620	4.04.4	4.03.2	36.0	180	246	✓	1000	BT # 127
1625	36.21.4	36.19.7	36.0	180	246	✓	1000	BT # 128
1630	4.04.4	4.03.1	36.0	180	246	✓	1000	BT # 129
1635	36.11.5	36.09.3	36.0	180	246	✓	1000	BT # 130
1640	4.04.4	4.03.2	36.0	180	246	✓	1000	BT # 131
1645	36.01.5	35.59.7	36.0	180	246	✓	1000	BT # 132
1650	4.04.4	4.03.2	36.0	180	246	✓	1000	BT # 133
1655	35.15.16	35.14.58	35.50.0	180	246	✓	1000	BT # 134
1700	4.04.4	4.03.2	35.50.0	180	246	✓	1000	BT # 135

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV C/SG		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
LTDN HARTZELL		FMS WHITE		14R KENLING		149667		05-1-83 #3		LEPT		LEPT		11 OCT 83		5	
TIME	NAC	#	VLF	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETA	REMARKS			
END								DIR/VEL			+TOT	REM	ATA				
1127	N	35.41.7	35.30.8	180	12	179	247	003	243	7000				DT # 123			
132	W	4.04.3	4.03.2											A/H			
21		35.32.2	35.30.5											DT # 124			
30		4.03.9	4.04.6											DT # 125			
32		35.34.7	35.31.9	356		356	236	003	240					DT # 126			
40		35.31.4	35.28.8											DT # 127			
41		35.31.7	35.29.1											DT # 128			
43		3.51.3	3.49.8	360		360	239	001	241					DT # 129			
47		3.51.8	3.49.2											ULF INTO DR			
54		3.51.1	3.49.5											DT # 130			
57		3.51.4	3.49.8											DT # 131			
59		3.51.4	3.49.4											DT # 132			
60		3.51.4	3.49.4											DT # 133			
64		3.51.4	3.49.4											DT # 134			
65		3.51.4	3.49.4											DT # 135			
66		3.51.4	3.49.4														
67		3.51.4	3.49.4														
68		3.51.4	3.49.4														
69		3.51.4	3.49.4														
70		3.51.4	3.49.4														
71		3.51.4	3.49.4														
72		3.51.4	3.49.4														
73		3.51.4	3.49.4														
74		3.51.4	3.49.4														
75		3.51.4	3.49.4														
76		3.51.4	3.49.4														
77		3.51.4	3.49.4														
78		3.51.4	3.49.4														
79		3.51.4	3.49.4														
80		3.51.4	3.49.4														
81		3.51.4	3.49.4														
82		3.51.4	3.49.4														
83		3.51.4	3.49.4														
84		3.51.4	3.49.4														
85		3.51.4	3.49.4														
86		3.51.4	3.49.4														
87		3.51.4	3.49.4														
88		3.51.4	3.49.4														
89		3.51.4	3.49.4														
90		3.51.4	3.49.4														
91		3.51.4	3.49.4														
92		3.51.4	3.49.4														
93		3.51.4	3.49.4														
94		3.51.4	3.49.4														
95		3.51.4	3.49.4														
96		3.51.4	3.49.4														
97		3.51.4	3.49.4														
98		3.51.4	3.49.4														
99		3.51.4	3.49.4														
100		3.51.4	3.49.4														

OCEANDEVIRON EIGHT 3700/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DOMART		SNR		MILEAGE		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		6 OF	
TIME	IN/OUT	#1	✓	✓	✓	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST TOT	DIST REM	ETE	ETA	REMARKS		
11:55	N	36.12.4	36.10.5	36.09.9						023									
12:01	N	36.02.6	36.01.1	36.00.0	✓	180	✓	180	246	004	243	1000					BT # 137		
12:05	N	36.02.6	36.01.1	36.00.0	✓				248	005	243	✓					BT # 137		
12:09	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 138		
12:13	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 139		
12:17	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 140		
12:21	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 141		
12:25	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 142		
12:29	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 143		
12:33	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 144		
12:37	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 145		
12:41	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 146		
12:45	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 147		
12:49	N	36.02.6	36.01.1	36.00.0	✓				250	007	244	✓					BT # 148		

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DEPART		SNR		AIRCRAFT BUINO				TRACK				FROM		TO		DATE		2 OF	
LDR HARTLELL		ENR WHITE		# 2		149 667				05-1-83 #3				CENT		CENT		11 OCT 82			
TIME	N/S	DA	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS							
ENR							DIR/VEL			+TOT	REM		ATA								
1534	10	36.43.1	36.40.4	36.40.0			103							BT # 149							
1537	10	3.12.0	3.13.5	3.13.3			006	244	1000												
1539	10	36.33.1	36.30.4	36.30.0			086							BT # 150							
1540	10	3.11.6	3.13.2	3.13.0			607	243													
36	14	36.23.2	36.20.3	36.20.0			063	244						BT # 151							
14	14	3.11.5	3.13.1	3.13.0			074	245													
38	38	36.13.0	36.10.1	36.09.7			042	245						BT # 152							
47	47	3.11.5	3.12.2	3.12.0			042	247						BT # 153							
41	41	36.03.4	36.00.4	36.00.1			080	246						BT # 154							
08	08	3.11.4	3.13.1	3.13.0			059	245													
43	43	35.53.1	35.50.1	35.49.7			064	245						BT # 155							
39	39	35.42.6	35.40.4	35.40.1			047	245						BT # 156							
46	46	3.11.4	3.12.9	3.12.0			047	245						BT # 157							
00	00						047	245						BT # 158							
50	50						047	245						BT # 159							
00	00						047	245						BT # 160							
51	51	35.40.6	35.36.9	35.37.0			047	245						BT # 161							
45	45	3.26.3	3.40.3	3.40.0			047	245						BT # 162							
59	59	35.41.6	35.37.8	35.37.8			047	245						BT # 163							
11	11	4.16.3	4.18.1	4.18.0			047	245						BT # 164							
304	304	35.40.5	35.36.5	35.36.5			047	245						BT # 165							
54	54	4.44.1	4.46.6	4.45.8			047	245						BT # 166							
67	67	35.46.8	35.42.0	35.42.8			047	245						BT # 167							
11	11	4.41.4	4.44.6	4.43.1			047	245						BT # 168							
08	08	35.50.1	35	35.46.1			047	245						BT # 169							
16	16	4.41.4	4	4.42.1			047	245						BT # 170							

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATION
ERRORS

VF 1.5
LTIME 80.00
LTIME 1.0 TONE

PHES 4-10 (after manilla update)
set at ~ 20 km from LUT
add ~ 26 to LOG6.

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK		FROM		TO		DATE		OF	
TIME	N/S E/W	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS			
1309	N	35.532	35.463	35.491															
1322	W	4.293	4.424	4.410															
11		35.594	35.546	35.552	625			219	060 6	222	V								
22		4.383	4.402	4.400															
12		36.026	35.583	35.587					280 1		V								
10		4.295	4.409	4.413															
13		36.064	36.017	36.023							V								
22		4.407	4.426	4.425															
14		36.121	36.075	36.079					070 5		V								
55		4.421	4.428	4.438															
16		36.174	36.123	36.132							V								
28		4.401	4.430	4.418															
17		36.219	36.168	36.177					152 5		V								
52		4.267	4.399	4.385															
18		36.257	36.207	36.215							V								
58		4.350	4.373	4.368															
21		36.305	36.260	36.262					113 10		V								
19		4.431	4.451	4.450															
23																			
20		4.501	4.527	4.521							1000'								
35		36.244	36.202	36.200	180	12	179	247	49 5	244	1000'								
32		4.550	4.573	4.570															
27		36.145	36.101	36.099															
48		4.549	4.573	4.570							V								
20		36.046	36.001	36.000															
15		4.548	4.575	4.570							V								

MANUAL S. DE HED

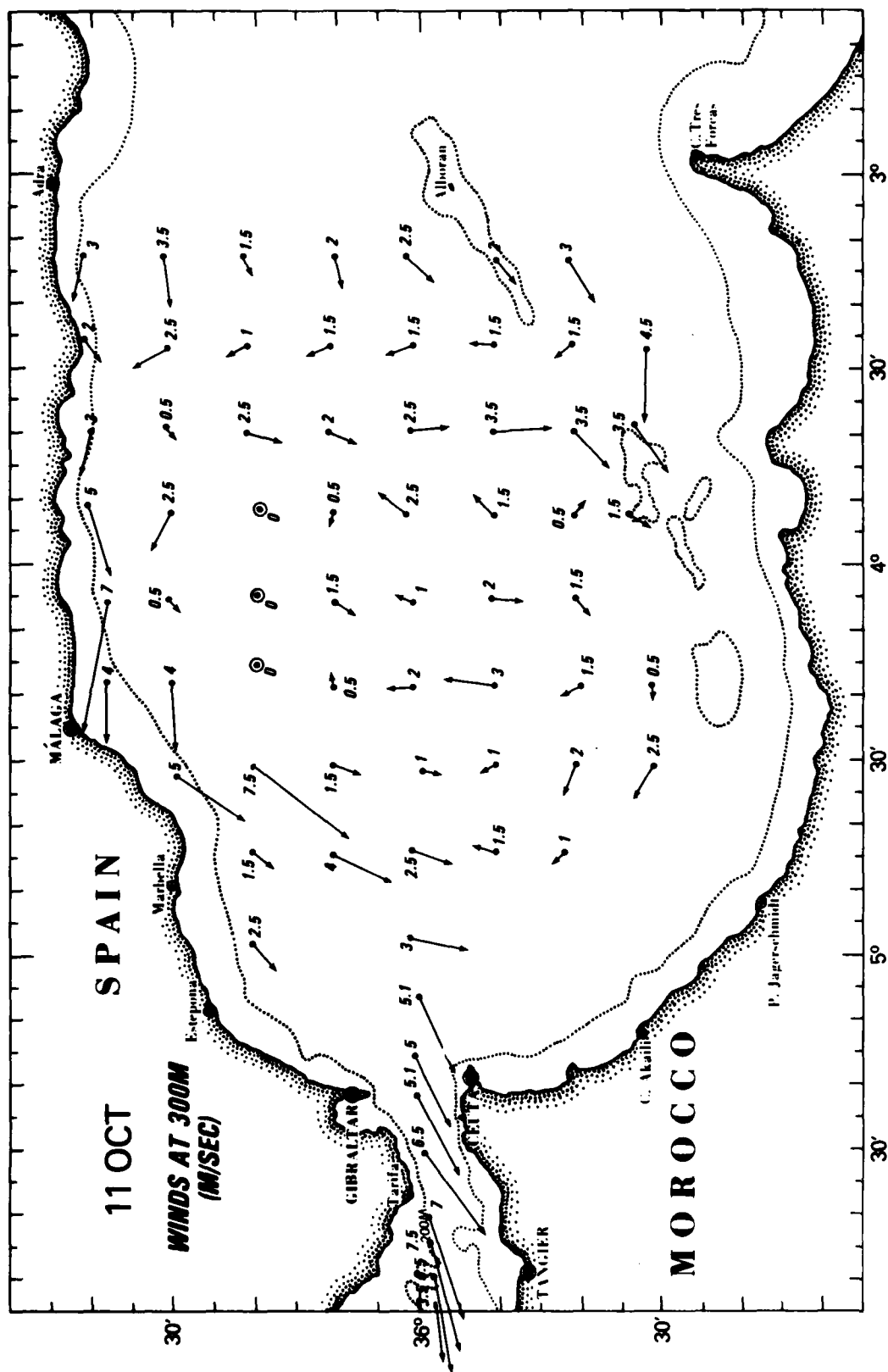
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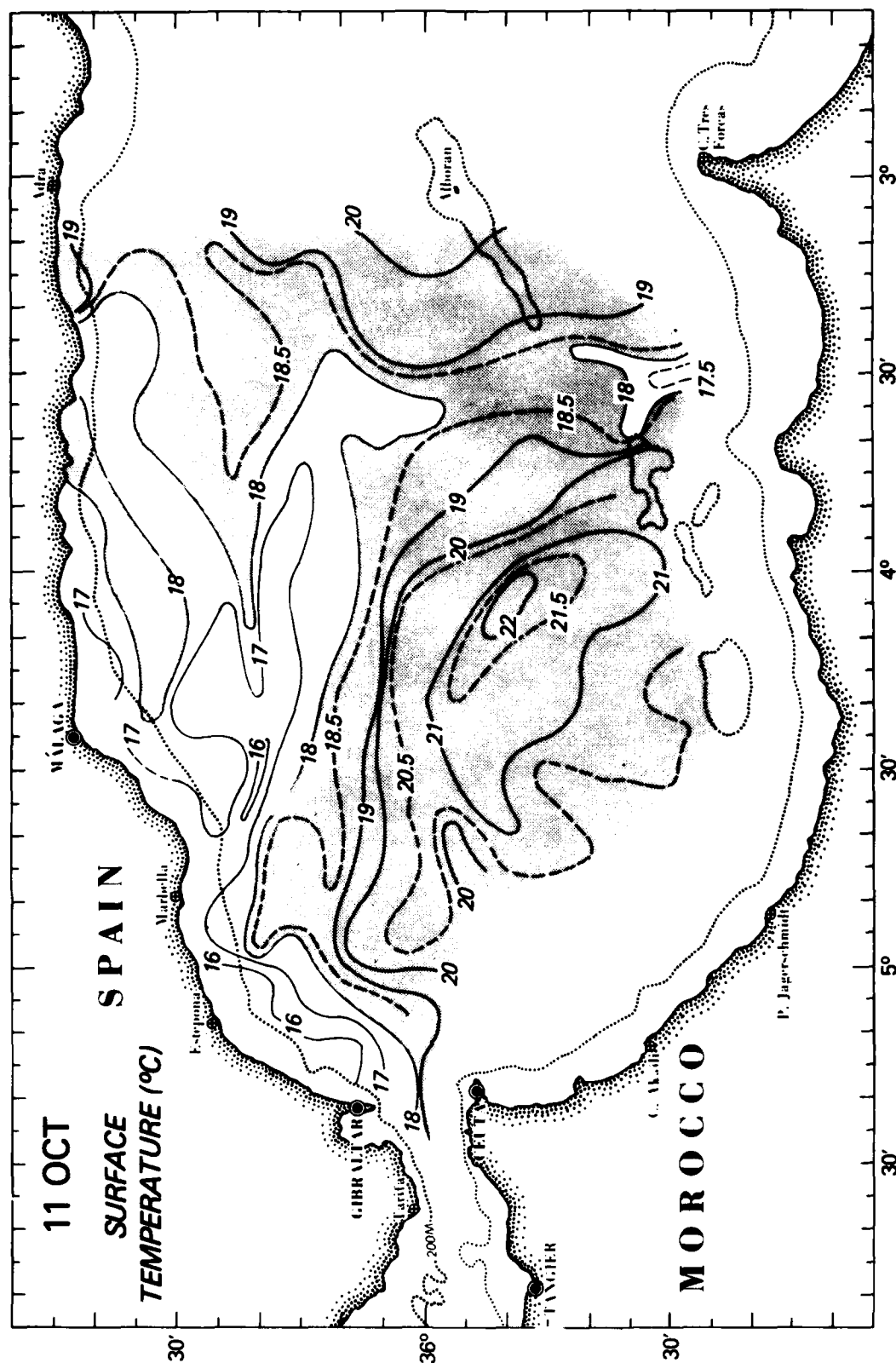
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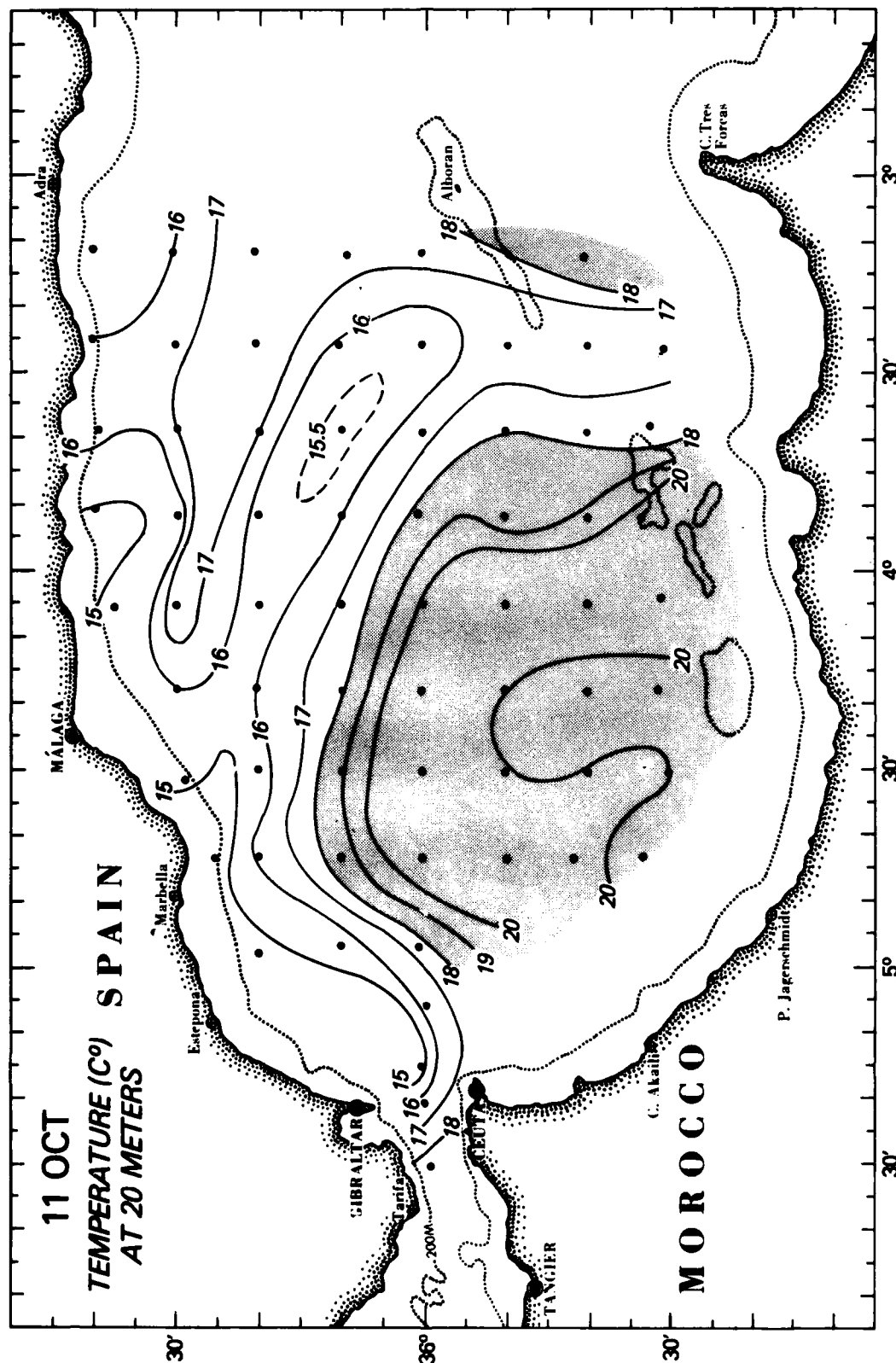
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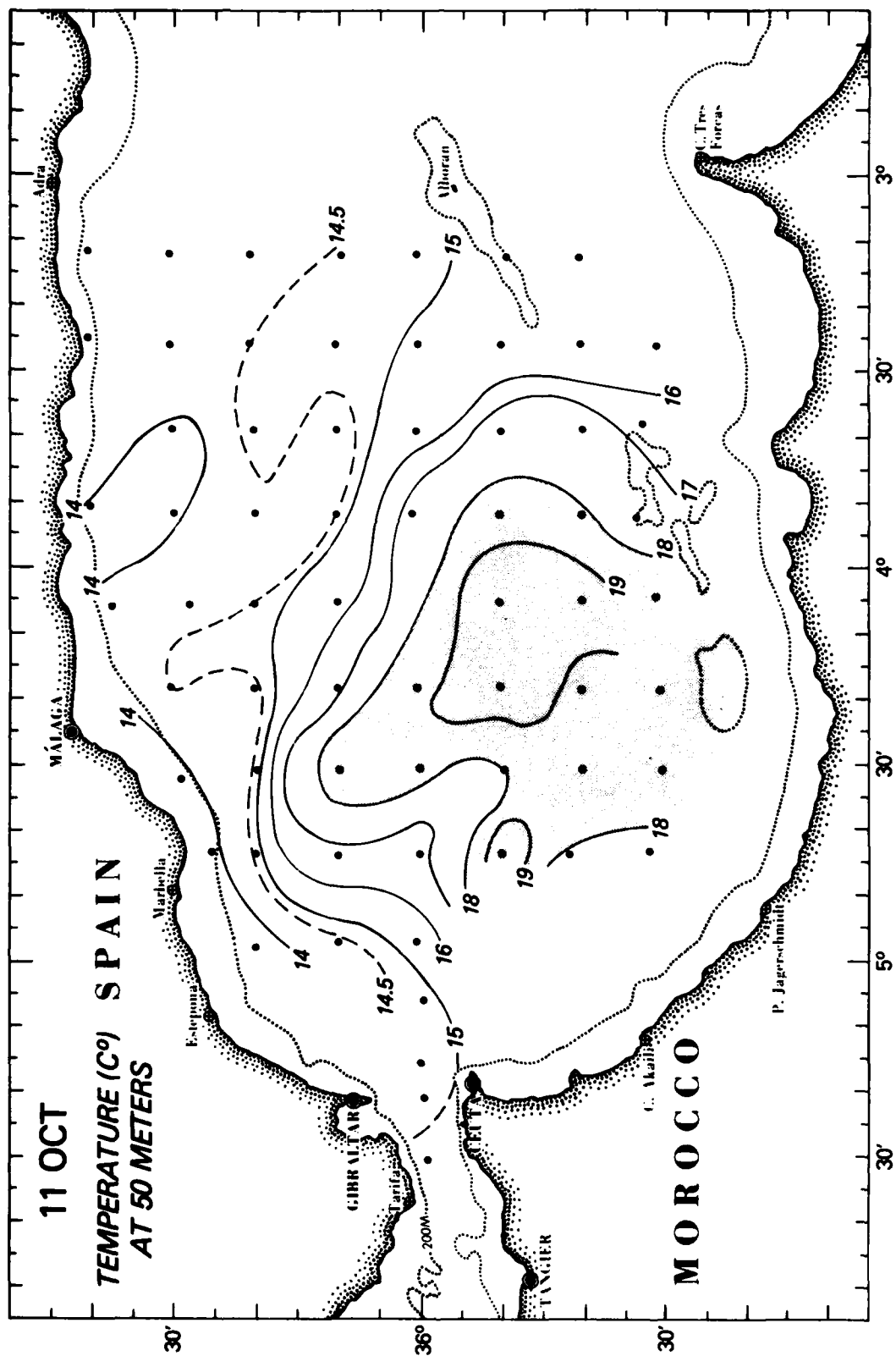
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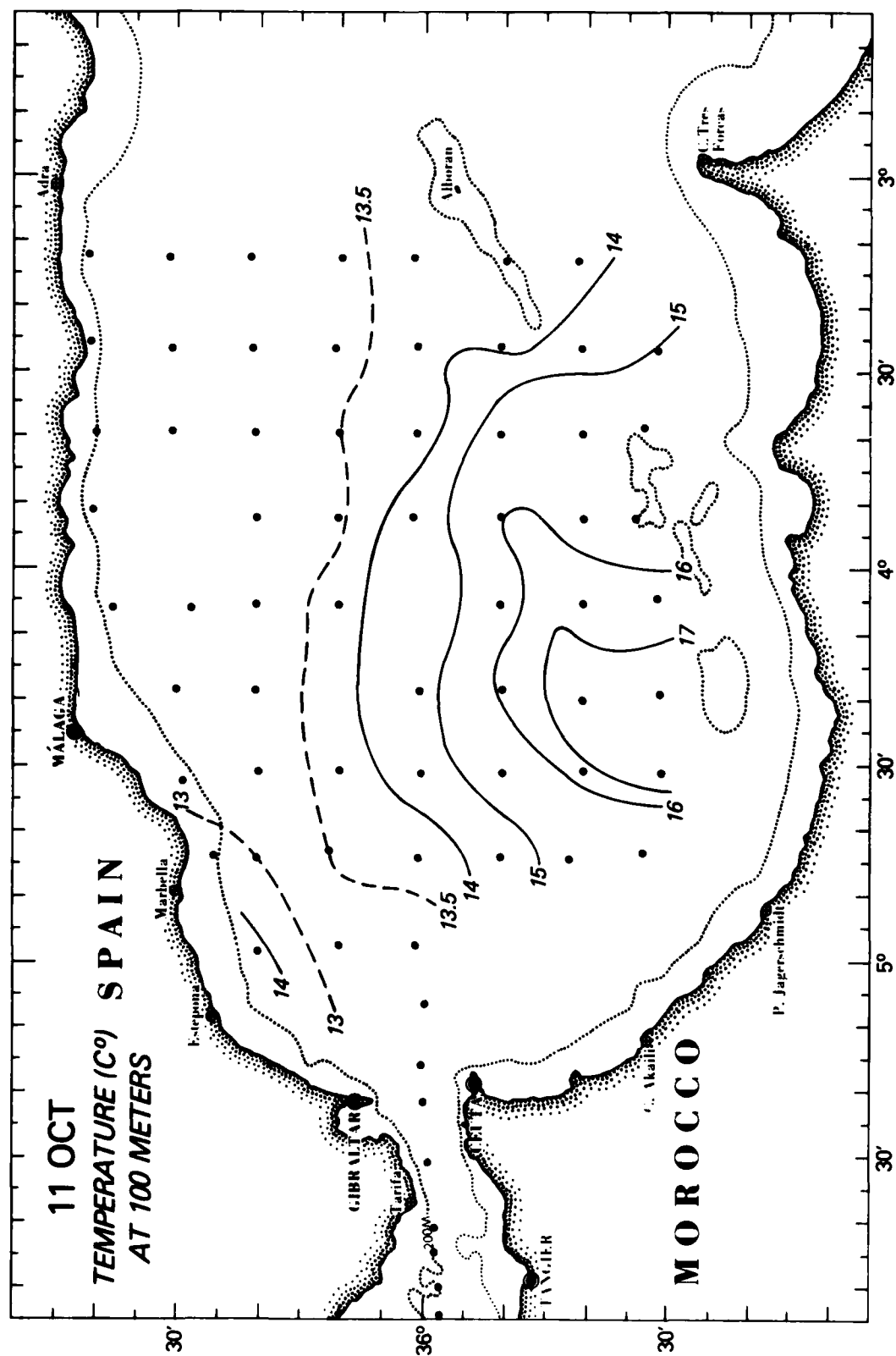
A/H

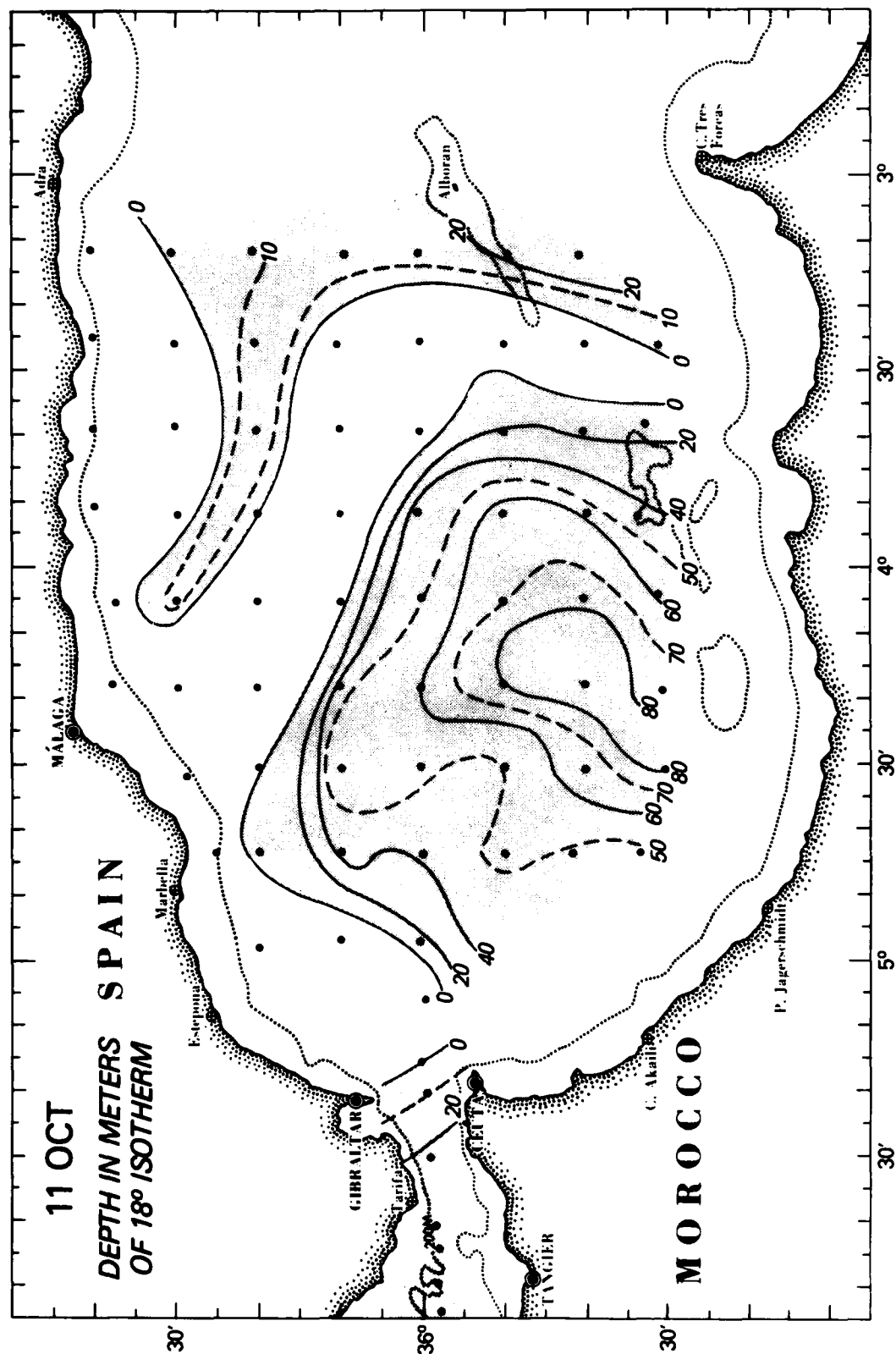












13 OCTOBER 1982

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	NAV LTJG DEPART	SNR	AIRCRAFT BUNO	TRACK	FROM	TO	DATE	OF								
LCDR HARTZELL	ENDS WHITE	NIR KEBLJJC	149667	OS-183#4	LENT	LENT	13 OCT 82	1								
TIME	N/S	#	VLF	#	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS
0828	N															INS ACCEPT
0840	N															ENDG START
0844	N															TAXI
0854	N															TOFF / LERT
0859	N	36.25.2	36.28.5	36.29.2	22.2	32	225	254	273	282	6000					NAVL
0910	N	6.36.6	6.37.6	6.36.2					271	268	1000					PSIT
0914	N	36.08.4	36.07.9	36.08.4	22.2	32	225	252	303	251	1000					PSIT
0915	N	7.06.5	7.07.8	7.06.8	22.2	32	225	251	308	254	1000					PSIT
0916	N	33.57.6	33.57.8	33.57.5	22.2	32	225	251	308	254	1000					PSIT
0917	N	6.45.6	6.45.2	6.46.0	14.7	4	147	251	308	254	1000					PSIT
0918	N	35.56.0	35.55.7	35.56.1	09.0	24	088	259	308	254	1000					PSIT
0919	N	6.08.9	6.09.5	6.09.3	09.0	24	088	259	308	254	1000					PSIT
0920	N	35.58.2	35.55.8	35.56.3	09.0	12	089	262	308	251	1000					PSIT
0921	N	5.43.0	5.43.4	5.43.4	09.0	12	089	262	308	251	1000					PSIT
0922	N	36.00.9	36.00.2	36.01.0	04.5	40	041	264	308	251	1000					PSIT
0923	N	5.16.2	5.16.3	5.16.6	04.5	40	041	264	308	251	1000					PSIT
0924	N	36.26.6	36.26.1	36.26.8												WRT (UPPER)
0925	N	4.52.6	4.51.1	4.53.1												WRT (UPPER)
0926	N	36.26.2	36.26.9	36.26.2	16.3	62	169	250	308	244	1000					WRT (UPPER)
0927	N	4.46.9	4.45.9	4.46.9	16.3	62	169	250	308	244	1000					WRT (UPPER)
0928	N	36.19.0	36.19.4	36.19.0	16.5	72	172	260	308	251	1000					WRT (UPPER)
0929	N	4.44.2	4.43.4	4.44.2	16.5	72	172	260	308	251	1000					WRT (UPPER)

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CHOR		NAVLTJ6 DOPART		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
LCID11 HARTRELL		EADS W-ITE		NR KEREIOG		149667		05-1-83 #4		LENT		LENT		12 OCT 82		2	
TIME	INR E/W	# 1	ULF	# 2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS	
0944		36-11.1	36-11.5	36-11.1	165	BL	172	263		251	1,000					POSIT	
10		4414	441.0	441.5	V	72	172	269	205/34	255	V					POSIT	
46		36-03.3	36-03.6	36-03.2	V	V	V	V	205/34	254	V					POSIT	
00		4428.9	4428.1	4428.0	V	V	V	V	205/34	254	V					POSIT	
48				35.94.1	V	V	V	V	205/34	254	V					POSIT	
00				4425.7	V	V	V	V	205/34	254	V					POSIT	
50				35.44.9	V	V	V	V	205/34	254	V					POSIT	
14				4432.6	V	V	V	V	205/34	254	V					POSIT	
51				35.41.1	V	V	V	V	205/34	254	V					POSIT	
10				4431.1	V	V	V	V	205/34	254	V					POSIT	
57		35.42.1	35.43.3	35.42.8	346	9R	337	169	276/20	186	V					90/270	
42		4421.8	4421.1	4422.0	345	V	336	167	277/20	185	V					SEMI	
58		35.46.4	35.46.6	35.46.1	V	V	V	V	277/20	185	V					SEMI	
55		4422.9	4422.2	4423.0	V	V	V	V	277/20	185	V					SEMI	
59		35.49.0	35.49.2	35.48.7	V	V	V	V	277/20	185	V					SEMI	
53		4423.7	4423.1	4422.9	V	V	V	V	277/20	185	V					SEMI	
1000		35.51.9	35.52.1	35.51.6	344	9R	335	171	278/21	190	V					SEMI	
57		4434.7	4434.1	4434.9	345	V	334	168	278/21	190	V					SEMI	
02		35.54.9	35.55.2	35.54.6	V	V	V	V	278/21	190	V					SEMI	
02		4425.7	4425.3	4425.9	V	V	V	V	278/21	190	V					SEMI	
53		35.57.8	35.57.9	35.57.5	V	V	V	V	278/21	190	V					SEMI	
08		4426.7	4426.2	4426.9	V	V	V	V	278/21	190	V					SEMI	
04		26-00.6	26-00.6	26-00.2	344	V	335	V	279/27	182	V					SEMI	
09		4437.7	4437.1	4437.8	V	V	V	V	279/27	182	V					SEMI	
05		26-02.6	26-02.7	26-03.2	V	V	V	V	279/27	182	V					SEMI	
15		4428.7	4428.2	4428.8	V	V	V	V	279/27	182	V					SEMI	

OCEANVIEW FROM EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG ROHART		SNR		AIRCRAFT BUINO		TRACK				FROM		TO		DATE		PAGE	
LCDR HATJELL		EUSO-47TG		IN KRLIUG		149667		05-1-83 #4				LENT		LENT		13 OCT 82		5 OF	
TIME	N/S	IN	VE	VE	VE	VE	VE	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS		
										DIR/VEL			+TOT	REM		ATA			
1006	10	36-06.4	36-06.5	36-06.0	344	10K	334	167	275	24	184	1,000					SER #9		
1106	10	4-39.6	4-39.1	4-39.8															
07		36-09.3	36-09.4	36-08.9															
22		4-40.6	4-40.2	4-40.8															
08		36-12.2	36-12.1	36-11.8															
27		4-41.6	4-41.2	4-41.8															
09		36-15.1	36-15.1	36-14.7															
32		4-42.6	4-42.3	4-42.8															
10		36-18.1	36-17.9	36-17.7															
27		4-43.6	4-43.2	4-43.8															
11		36-21.0	36-20.8	36-20.6															
39		4-44.6	4-44.0	4-44.8															
12		36-23.8	36-23.6	36-23.4															
38		4-45.5	4-44.9	4-45.7															
14																			
00																			
19		36-26.2	36-26.1	36-25.8															
11		4-46.7	4-47.3	4-47.0															
21				36-19.1															
00				4-44.3															
23		36-12.0	36-11.8	36-11.5															
00		4-41.3	4-41.7	4-41.7															
25		36-04.3	36-04.1	36-03.7															
00		4-38.6	4-39.0	4-39.0															
27		35-36.3	35-36.1	35-35.7															
00		4-35.8	4-36.5	4-36.3															

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAVLTJ6 DORR		SNR		REAR (IN)		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		# of	
LNDZ HMTZELL		ENDS WHITE		VLF		TC		TH		GS		WIND DIR/VEL		TAS		ALT		DIST + TOT	
TIME		# 1		# 2		DA		DIR/VEL		TAS		ALT		DIST + TOT		DIST REM		ETA	
1029	N	35.481	35.479	35.475	164	5L	169	250	32	238	200								POEIT
1000	W	4-330	4-335	4-325															
1030		35.423	35.422	35.417															POEIT
1017		4-31.1	4-315	4-315															POEIT
1047		35.431	35.429	35.422	347	1R	346	250	26	254	10,000								POEIT
1047		4-31.7	4-32.1	4-32.3															
1050		35.519	35.517	35.517	345	2R	342	244	240	247									POEIT
1000		4-34.4	4-346	4-349															
1052		35.597	35.596	35.596	344	3R	341	243	245	246									POEIT
1000		4-37.0	4-37.3	4-37.6															
1054		36.075	36.074	36.074															POEIT
1000		4-29.7	4-399	4-40.3															
1056		36-	36-	36-15.2															POEIT
1000		4-	4-	4-43.0															
1056		36-16.8	36-16.5	36-16.8															X FRONT
1000		4-42.9	4-430	4-43.5															
1058		36.223	36.22.8	36.22.3															POEIT
1000		4-45.1	4-45.2	4-45.7															
1059		36.276	36.27.1	36.27.6	345	3R	342	251	253	254									POEIT
1000		4-46.6	4-46.6	4-47.3															POEIT
1105		36.25.4	36.25.6	36.25.3	164	6R	130	245	267	245									POEIT
1035		4-47.7	4-47.6	4-48.1															POEIT
1007		36.17.1	36.16.5	36.16.9	164	7L	171	247	267	246									POEIT
1040		4-44.7	4-44.7	4-45.5															
1000		36.08.5	36.08.0	36.08.2	165	6L	171	247	271	245									POEIT
1000		4-41.6	4-41.8	4-42.5															

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAVLTG BOARD		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
ICDR HARTRELL		F005 WHITE		14R REF DING		149667		05-1-63 #4		CERT		CERT		13 OCT 63		5	
TIME	INSTR	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST TOT	DIST REM	ETE	ETA ATA	REMARKS	
1112	N	36.000	35.58.4	35.57.6					273								
1200	N	4.38.6	4.38.4	4.38.5	165	62	171	247	026	241	10000					POST	
1108																	
14		35.50.4	35.49.8	35.49.9					280								
34		4.35.3	4.35.2	4.36.2	165	52	170	248	024	243	10000					POST	
16		35.42.6	35.42.0	35.42.1					277								
32		4.32.6	4.32.5	4.33.5					023	244						POST	
24		35.43.3	35.42.5	35.42.5					256								
31		4.28.7	4.28.5	4.29.8	344	22	321	237	008	238						POST	
26		35.49.3	35.48.5	35.48.5					262								
06		4.30.7	4.30.6	4.31.9					007	240						POST	
28		35.57.5	35.56.8	35.56.6					257								
30		4.33.4	4.33.4	4.34.1					011							POST	
30		36.05.9	36.04.9	36.04.8					254	243							
24		4.26.2	4.26.1	4.27.4	344				011	268						POST	
32		36.11.9	36.10.9	36.10.6					250								
00		4.38.3	4.38.2	4.39.4	345	42	341	240	015	245						POST	
34		36.20.3	36.18.7	36.18.6					250								
02		4.41.1	4.40.9	4.42.2					013	239						POST	
35		36.27.9	36.25.7	36.25.7					244							A/M	
59		4.43.7	4.43.4	4.44.6	344	42	340	241	015	244						POST	
28		36.33.9	36.30.4	36.30.5												NOT PIER	
50		4.51.6	4.51.6	4.52.2												36.30.2	
✓42		36.22.4	36.17.1	36.16.9	164											4.52.3	
55		4.43.6	4.42.7	4.42.6												TO 5. EXP MINE	

OCEANDEVIRON EIGHT 3780/1 (REV 81)

ASSEMBLY

KID

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LOG		BOPART		SNR		RECEIVING		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		6 OF	
LCLD HARTRELL		ENDS 10/1/78		#2		#2		#2		149663		05-1-83		#4		LENT		13 OCT 83			
TIME	N/S	ALT	VLF	GS	TH	DA	TC	TH	GS	WIND	DIRVEL	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS			
11:00	N	25549	25442	25412			010		196	291	26		500'					NOT SP#1			
10:00	N	43412	43037	4318			225			276	28		✓					SP#2			
06		25580	25474	25473			210			283	22		✓					SP#3			
59		43336	4299	4311			014			271	20		✓					SP#4			
57		26005	25502	25498						267	32		✓					SP#5			
56		4350	4310	4323			356			264	33		✓					SP#6			
55		26026	25533	25531						261	33		✓					SP#7			
54		4350	4309	4322			350			255	26		✓					SP#8			
V59		26070	25565	25564						246	26		✓					SP#9			
59		4353	4310	4323			329			246	35		✓					SP#10			
1201		26163	25599	25597						246	35		✓					SP#11			
00		4360	4315	4329			356			246	35		✓					SP#12			
01		26130	26029	26025						246	35		✓					SP#13			
55		4370	4323	4338						255	26		✓					SP#14			
02		26156	26056	26052						246	26		✓					SP#15			
55		4393	4344	4359						246	35		✓					SP#16			
03		26180	26080	26077						246	35		✓					SP#17			
46		4405	4356	4371						246	35		✓					SP#18			
04		26210	26111	26108						246	35		✓					SP#19			
40		4414	4364	4379						246	35		✓					SP#20			
05		26240	26140	26129			012			246	35		✓					SP#21			
36		4412	4363	4375			356			246	35		✓					SP#22			
06		26269	26166	26167						246	35		✓					SP#23			
23		4412	4364	4379						246	35		✓					SP#24			
07		26273	26196	26195						246	35		✓					SP#25			
24		4434	4380	4394						246	35		✓					SP#26			

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV 556 DOP/INT		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
1000		WANTZELL		ENS WHITE		MR KERCHIOG		CS-1-83 #4		LEAT		LEAT		13 OCT 83		2	
TIME	N/S	#1	VLF	#2	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA	REMARKS	
	ENG								DIR/VEL			TOT	REM		ATA		
1208	N	26-213	26-215	36-216	271	6R	765	169	241	202	500					20#1214	
1495		4-418	4-427	4-436					34								
09		36-341	36-244	36-245	007				237							20#4415	
41		4-485	4-429	4-441					34								
10		36-361	36-267	36-266												20#4516	
20		4-490	4-421	4-445												AH C-1	
15		26-296	36-299	36-206												WOT PIER	
40		4-503	4-518	4-523												26-202/452.3	
17		36-255	36-259	36-255	162	7L	169	240	270	235						1-05T	
30		4-471.5	4-465	4-468					21								
19		36-17.6	36-17.6	36-17.6					271								
50		4-45.2	4-43.5	4-43.8	164	7L	171	247	031	245						POSIT	
✓																	
12:18																2	Late Entry
21		36-08.8	36-09.1	36-08.9					271								
40		4-43.1	4-40.6	4-40.8	164	7L	171	245	031	244						POSIT	
23		36-01.3	36-01.5	36-01.3					268								
40		4-41.3	4-38.1	4-38.2	165	7L	172	240	032	240						POSIT	
25		35-53.3	35-53.7	35-53.5					267								
42		4-39.4	4-35.4	4-35.5	164	8L	172	240	030	238						POSIT	
27		35-46.8	35-42.0	35-42.0					274								
24		4-37.9	4-33.1	4-33.3	✓	✓	✓	238	031	234						POSIT	
28		35-41.0	35-41.5	35-41.3	✓	✓	✓	242	032	235						A/H	
55		4-36.5	4-31.3	4-31.4					271							POSIT	
35		35-39.9	35-42.0	35-42.0					262								
54	✓	4-40.1	4-32.7	4-32.9	345	5R	340	230	032	237						POSIT	

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR	A/C MODEL	NAV LTG	WOPART	SNR	AIRCRAFT BUNO			TRACK			FROM	TO	DATE	OF
					TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA	REMARKS
1238	U	35.48.8	35.51.7	35.51.7	339	232	244	235	5000					POSIT
32	W	4.43.9	4.36.0	4.36.2	✓	✓	253	240	✓					POSIT
40		35.54.1	35.52.5	35.52.6	✓	✓	260	241	✓					POSIT
10		4.46.2	4.38.1	4.38.3	✓	✓	264	242	✓					POSIT
42		36.01.0	36.05.1	36.05.2	✓	✓	276	241	✓					POSIT
10		4.44.0	4.40.7	4.40.9	✓	✓	276	241	✓					POSIT
44		36.18.4	36.13.0	36.13.2	✓	✓	276	241	✓					POSIT
17		4.51.9	4.43.0	4.43.7	✓	✓	276	241	✓					POSIT
46		36.19.3	36.24.5	36.24.8	✓	✓	276	241	✓					POSIT
10		4.56.0	4.47.4	4.47.7	✓	✓	276	241	✓					POSIT
50		36.18.5	36.23.9	36.24.4	✓	✓	276	241	✓					POSIT
56		4.51.3	4.43.6	4.43.4	✓	✓	276	241	✓					POSIT
52		36.18.6	36.17.2	36.17.5	✓	✓	276	241	✓					POSIT
39		4.50.0	4.42.2	4.42.4	✓	✓	276	241	✓					POSIT
54		36.05.1	36.10.2	36.11.0	✓	✓	276	241	✓					POSIT
20		4.47.5	4.39.8	4.40.2	✓	✓	276	241	✓					POSIT
56		35.56.9	36.02.6	36.02.7	✓	✓	276	241	✓					POSIT
24		4.44.2	4.37.0	4.37.4	✓	✓	276	241	✓					POSIT
✓ 58		35.49.6	35.53.2	35.53.3	✓	✓	276	241	✓					POSIT
26		4.41.1	4.34.4	4.34.8	✓	✓	276	241	✓					POSIT
1300		35.43.1	35.48.3	35.48.8	✓	✓	276	241	✓					POSIT
12		4.28.3	4.22.1	4.22.6	✓	✓	276	241	✓					POSIT
		35.36.8	35.42.3	35.42.4	✓	✓	276	241	✓					POSIT
		4.35.6	4.30.0	4.30.4	✓	✓	276	241	✓					POSIT
✓ 14		35.55.8	35.43.5	35.43.2	✓	✓	276	241	✓					POSIT
06		4.30.8	4.24.9	4.25.2	✓	✓	276	241	✓					POSIT

OCEANDEVRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CHDR		NAV LTJG DOPART		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		1 OF	
CNO: HANDELL		E05 WHITE		M0 KERALIA06		149662		05-1-83 #4		LENT		LENT		13 OCT 82			
TIME	N/S E/W	FL	VLF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS		
13	10	35.43.5	35.51.7	35.51.5				260									
14	10	4.32.8	4.32.6	4.33.5	344	50	339	021	236	5000					POSIT		
18	11	35.49.5	35.58.3	35.57.9				258									
06		4.34.4	4.34.8	4.35.7	344	50	339	019	230						POSIT		
20		35.58.7	36.05.8	36.05.6				266									
13		4.36.4	4.37.4	4.38.0	344	50	339	019	232						POSIT		
22		36.03.1	36.12.6	36.12.6				267									
11		4.38.3	4.39.8	4.40.7				224	233						POSIT		
24		36.09.9	36.19.8	36.19.8				283									
16		4.41.4	4.42.3	4.43.2				016	224						POSIT		
✓ 25		36.16.5	36.26.6	36.26.7	155			270									
00		4.42.5	4.44.7	4.45.6	50			018	236						A/H		
1332					#1			W ASEN		4000							
33			36.16.5	36.16.3				272									
06			4.43.7	4.43.4	164	60	170	033	246	4000					POSIT		
35			36.08.7	36.08.6				287									
09			4.39.9	4.40.7	164	70	171	033	251						POSIT		
36			36.01.3	36.01.3				280									
39			4.37.6	4.38.2	165	70	172	033	251						POSIT		
38			35.53.5	35.53.7				270									
31			4.35.1	4.35.6	164	80	172	036	254						POSIT		
41			35.42.1	35.42.1				266									
17			4.31.1	4.31.7				033	254						A/H		
✓ 49			35.42.0	35.42.2	346	70	339	256	251						POSIT		
42			4.31.3	4.31.9				332		3000							

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DONALD		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF	
LTDQ MARTINELLI		ENDS W/MTTC		NAV FERRIS		149667		OS-1-83		24		LEAT		12 OCT 82		12	
TIME	N/S	#	ULF	FL	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETA	REMARKS		
EM									DIR/VEL			+TOT	REM	ATA			
1351	N		35.49.4	35.49.4	345	7R	338	130	264	245	3000				POSIT		
130	W		4.32.8	4.34.2					31								
53			35.56.1	35.56.3	V	BR	337	234	262	244	V				POSIT		
20			4.36.1	4.36.5					34								
54			36.02.2	36.02.4	344	V	336	235	270	249	V				POSIT		
30			4.38.3	4.38.6					31								
56			36.07.7	36.08.1	V	7R	337	235	271	247	V				POSIT		
20			4.40.1	4.40.5					32								
58			36.13.3	36.13.7	V	BR	336	230	278	250	V				POSIT		
00			4.42.0	4.42.4					35								
59			36.18.8	36.19.1	V	4R	340	278	282	242	V				POSIT		
30			4.43.9	4.44.3					19								
1401			36.25.1	36.26.0	V	V	/	/	280	V	V				POSIT		
30			4.46.2	4.46.7					17						AT-1		
06			36.30.1	36.31.3													
32			4.52.9	4.51.9													
07			36.27.5	36.27.1	152	BL	160	232	271	224	V				POSIT		
46			4.46.7	4.47.5					31								
09			36.21.7	36.21.5	164	9L	173	246	276	238	V				PM #2		
16			4.44.7	4.45.1					42								
10			36.15.7	36.15.5	V	EL	172	253	279	243	V				PM #3		
45			4.42.7	4.43.0					37								
13			36.10.1	36.09.8	V	9L	173	252	282	V	V				PM #4		
08			4.40.7	4.41.1					41								
13			36.04.1	36.04.0	V	V	V	257	284	245	V				PM #5		
40			4.38.5	4.39.1					39								

OCEANDEV FROM EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTR DEPART		SNR		AIRCRAFT BUNO				TRACK				FROM				TO		DATE		REMARKS	
TIME	N/S E/W	ULF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA									
1415	N	35.587	35.584	164	EL	172	259	281/40	247	2000										PM #6			
1512	W	4.367	4.372																				
1611		35.529	35.526	V	V	V	257	289/28	242	V										PM #7			
1717		4.347	4.352																				
1756		35.461	35.456	V	V	V	254	278/37	245	V										PM #8			
1819		4.324	4.329																				
1919		35.406	35.403	V	V	V	249	278/38	241	V										PM #9			
2023		4.304	4.310																	AAH			
2121		—	35.346	348	5R	343	229	276/22	240	1150										Posit			
2224		—	4.294																				
2324		35.393	35.390	345	6R	329	228	273/27	243	V										Posit			
2430		4.289	4.307																				
2536		35.458	35.454	V	7R	338	229	265/27	240	V										Posit			
2615		4.215	4.328																				
2728		25.524	35.520	V	V	V	233	267/30	244	V										Posit			
2800		4.340	4.360																				
2930		35.598	35.594	V	6R	339	229	276/27	244	V										Posit			
3000		4.365	4.375																				
3122		36.071	36.067	344	V	328	226	274/27	239	V										Posit			
3200		4.390	4.400																				
3333		26.125	26.121	V	7R	327	225	260/27	235	V										Posit			
3420		4.408	4.419																				
3525		26.185	26.182	V	8R	336	232	263/23	242	V										Posit			
3611		4.429	4.440																	Max PRS SHIP			
3737	V	26.277	26.270	V	7R	337	V	255/26	240	V										AAH			
3830	V	4.457	4.470																				

OCEAN DE VIRON EIGHT 3780/1 (REV 81)

WOT +11K-1440 (LUS ODT)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LFB DEPART		SNR		NAV K414.1V		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		13 OF	
TIME	N/S E/W	UF	#2	TC	DA	TH	GS	WIND DIRVEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS				
1441	10	36.276	36.273	159	9L	168	241	263/40	240	1000					DT #168				
11	W	4469	4.476																
42		36.220	36.217	163	V	172	244	268/40	241	V					DT #169				
39		4445	4.452																
44		26.163	26.159	164	V	173	246	271/32	242	V					DT #170				
06		4426	4.432																
45		36.104	36.100	V	8L	173	251	280/33	242	V					DT #171				
36		4405	4.411																
47		36.046	36.042	V	7L	177	253	280/33	245	V					DT #172				
00		4385	4.392																
48		35.583	35.583	V	9L	173	252	282/42	240	V					DT #173				
39		4225	4.371																
49		35.529	35.525	V	8L	172	V	278/38	242	V					DT #174				
54		4246	4.352																
51		35.463	35.462	165	V	173	V	281/38	239	V					DT #175				
27		4224	4.320																
52		35.405	35.400	V	V		V	280/32	236	V					DT #176				
59		4203	4.209												AM				
1000		35.425	35.430	341	6K	325	214	290/30	239	800					DT #177				
20		4314	4.320																
01		35.491	35.487	345	7R	328	220	278/30	228	V					DT #178				
55		4334	4.339																
03		35.549	35.546	V	V	V	224	268/30	226	V					DT #179				
34		4255	4.259																
05		36.009	36.005	V	8L	327	227	262/29	238	V					DT #180				
13		4227	4.279																

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAVLT Rep 4/14		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		REMARKS	
TIME	N/S E/W	WF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	DATE	DATE	OF				
1506	N	26-06.2	26-06.1	344	8R	336	221	260	241	800'						130700	130700	13	RTN 181		
145	W	41-29.5	439.8					233													
08		26-12.0	36-11.9	✓	✓	✓	✓	235	239	✓									RTN 182		
18		41-41.5	411.8					33													
09		36-17.7	36-17.7	✓	9R	325	233	234	241	✓									RTN 183		
51		41-22.5	41-43.8					36													
11		26-22.7	36-23.7	✓	9R	✓	234	249	240	✓									RTN 184		
26		41-45.7	41-45.9					37											AT		
14		36-30.4	36-30.7							✓									NOT PIERCE		
50		41-52.2	41-51.6																NOT PIERCE		
16		26-25.6	36-25.6	161	11L	172	279	262	231	500'									PIERCE		
26		41-46.5	41-46.9					42													
18		36-19.7	36-19.8	164	10L	174	226	257	241	✓									PIERCE		
00		41-44.5	41-44.5					39													
19		36-13.1	36-13.2	✓	✓	✓	241	265	242	✓									PIERCE		
45		41-42.3	41-42.2					41													
21		36-05.3	36-05.3	164	✓	✓	245	268	240	✓									PIERCE		
45		41-39.6	41-39.5					41													
23		35-58.3	35-58.4	164	✓	✓	249	281	241	✓									PIERCE		
20		41-37.4	41-37.2					41													
25		35-51.7	35-51.6	✓	8L	172	256	290	238	✓									PIERCE		
10		41-35.1	41-34.9					42													
26		35-45.1	35-45.1	165	✓	173	261	299	✓	✓									PIERCE		
45		41-32.9	41-32.6					40											A/H		
✓ 32	✓	35-45.7	35-45.8							✓									DTPF NOT		
✓ 32	✓	41-20.2	41-29.9																SE #1		

OCEANDEVIRON EIGHT 3760/1 (REV 81)

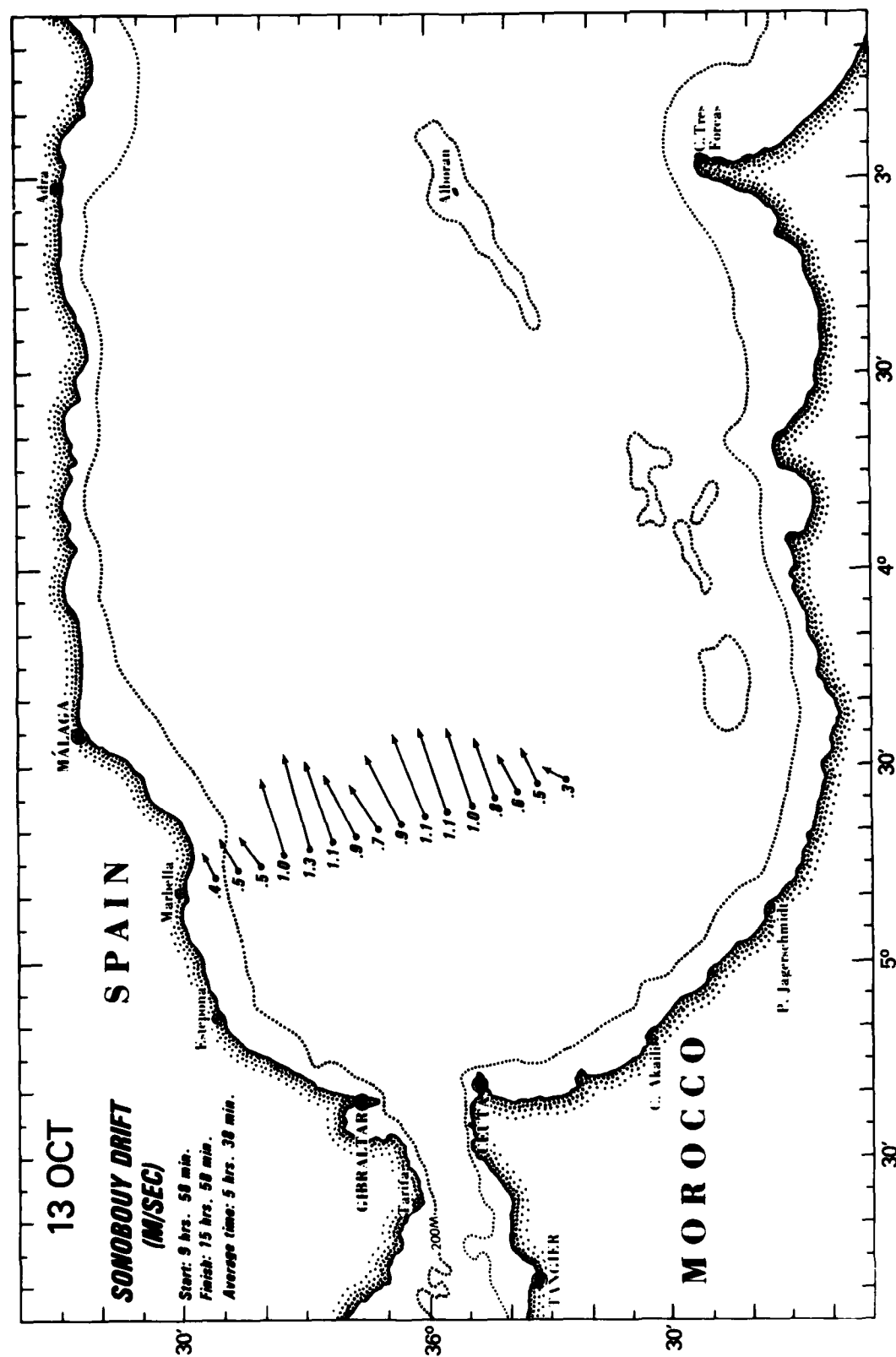
NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG LOPUKUJ		SNR		AIRCRAFT BUNO					TRACK				FROM		TO		DATE		14 OF	
TIME	N/S E/W	VLF	UTN	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS							
1538	N	35.483	35.482	315			190		225	5001					SR#2							
100	W	4.274	4.269												MOT							
38		35.510	35.513	010			216		228	✓					SR#3							
54		4.277	4.273							✓					SR#4							
39		35.537	35.544							✓					SR#5							
51		4.261	4.251							✓					SR#6							
40		35.567	35.574							✓					SR#7							
42		4.245	4.225							✓					SR#8							
41		36.007	36.012	010			225	262	223	✓					SR#9							
43		4.222	4.229					32		✓					SR#10							
42		36.027	36.040							✓					SR#11							
39		4.241	4.239							✓					SR#12							
44		36.072	36.073	311			202	262	227	✓					SR#13							
01		4.288	4.284					32		✓					SR#14							
45		36.098	36.099							✓					SR#15							
08		4.321	4.318							✓					SR#16							
45		36.125	36.129	025			249	247	228	✓					SR#17							
59		4.315	4.309					32		✓					SR#18							
46		36.145	36.152							✓					SR#19							
41		4.294	4.281							✓					SR#20							
47		36.173	36.180	023			249	246	225	✓					SR#21							
33		4.265	4.256					11		✓					SR#22							
49		36.203	36.207							✓					SR#23							
09		4.310	4.305							✓					SR#24							
15	✓	36.231	36.234	292			197	254	220	✓					SR#25							
36		4.402	4.398					38		✓					SR#26							

OCEANDEVRON EIGHT 3760/1 (REV 81)

A/C CNDR	NAV	SNR	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	TO	DATE	OF
14556	NAV 0630	44	350			027	240	224	500				027	130123	15
157	NAV 0630	44	350			027	240	224	500				027	130123	15
157	NAV 0630	44	350			027	240	224	500				027	130123	15
157	NAV 0630	44	350			027	240	224	500				027	130123	15
1606	NAV 0630	44	350			027	240	224	500				027	130123	15
1616	NAV 0630	44	350			027	240	224	500				027	130123	15
1615	NAV 0630	44	350			027	240	224	500				027	130123	15
1618	NAV 0630	44	350			027	240	224	500				027	130123	15
1634	NAV 0630	44	350			027	240	224	500				027	130123	15
1628	NAV 0630	44	350			027	240	224	500				027	130123	15
1634	NAV 0630	44	350			027	240	224	500				027	130123	15
1652	NAV 0630	44	350			027	240	224	500				027	130123	15
1700	NAV 0630	44	350			027	240	224	500				027	130123	15

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15 OCTOBER 1982

[illegible]

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV	SNR		AIRCRAFT BUNO				TRACK				FROM	TO	DATE	REMARKS	3 OF 3
TIME	NS	ENR	ALT	VS	TC	DA	TH	GS	WIND	TAS	ALT	DIST	DIST	ETE	ETA		
0912	N		VL	3610.7	007	0	007	226	190	223	1000					BT#186	
104	N		5087	509.6					04								
14			3619.2	2618.4	055	1	056	226	200	229	V					BT#187	
24			5074	507.8				242	03							AT#1	
16			3624.2	3624.5						245	V					BT#188	
51			4577	457.5													
16			3620.2	3620.0	194	1	195	V	05	242	V					BT#189	
24			4544	455.7													
20			2610.4	2609.9	180	0	180	252	346	246	V					BT#190	
53			4553	457.0					08								
23			3600.4	3600.1	160	2	160	252	300	249	V					BT#191	
13			4554	457.0					11								
25			3549.4	3549.2	V	2	183	252	302	245	V					BT#192	
46			4554	457.0					41								
27			3541.5	3541.1	129	2	131	251	299	231	V					BT#193	
41			4550	456.9					21							AT#1	
31			3532.8	3532.0					24							BT#194	
08			441.6	444.1					24							BT#195	
34			3536.0	3535.7	356	4	352	199	267	202	V					BT#196	
40			441.1	442.7					12							BT#197	
36			2540.3	2540.2	259	2	256	203	257	209	V					BT#198	
40			441.1	444.0					12							BT#199	
37			3545.1	3544.9	360	4	356	202	286	205	V					BT#200	
24			441.2	444.0					13							BT#201	
38			3550.1	3549.9	V	2	258	200	302	204	V					BT#202	
54			441.2	444.0					7							BT#203	

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUINO				TRACK				FROM		TO		DATE		3 OF	
TIME	N/S E/W	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS					
0940	N		25.55.1	35.54.9	360	1K	39	200	223/01	201	1000					33#6					
21	W		4.41.2	4.44.0																	
41			36.00.0	36.00.0																	
51			4.41.2	4.44.0												RTN 197					
42			36.01.5	36.01.5												20#7					
22			4.41.2	4.44.0												50#8					
43			36.04.9	36.04.9				205	2/	204						32#9					
21			4.41.1	4.44.0																	
44			36.07.4	36.07.5	360	1L	001			205						32#10					
05			4.41.2	4.44.0																	
44			36.10.0	36.10.1				204		210						RTN 198					
51			4.41.2	4.44.0												50#11					
45			36.12.4	36.12.4	360			201		207						20#17					
32			4.41.3	4.44.0																	
46			36.15.1	36.15.1	360	1L	001	199	033/04	205						20#13					
20			4.41.3	4.44.0																	
47			36.19.9	36.19.9				196	033/05	204						RTN 199					
48			4.41.3	4.44.0												50#14					
49			36.24.7	36.24.9				195	053/03	203						RTN 200					
19			4.41.3	4.44.0												50#15					
54			36.29.9	36.20.4												NOT MARKED					
51			4.50.7	4.52.4												36.20.2/4.52.4					
57			36.26.6	36.26.2	176	1L	177	349	305/06	246						POST					
59			4.44.3	4.44.7												41H					
60			36.17.0	36.17.0	180			252	291/06	252						POST					
60			4.41.2	4.44.0																	

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUINO						TRACK				FROM		TO		DATE		# OF	
TIME	N/S EMP	#1	VLF			TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS						
1001	N		26.08.6	25.08.5	180	2L	182	253	275	09	214	500					POEIT						
00	W		4-44.1	4.44.0	180	2L	182	247	258	13	250	✓					POEIT						
1003			36.00.4	35.00.2	✓	4L	184	244	267	18	245	✓					POEIT						
00			4-44.2	4.44.0	✓	5L	185	240	257	21	246	✓					POEIT						
05			25.52.1	25.51.9	✓	4L	184	239	251	19	250	✓					POEIT						
00			4-44.4	4.44.0	✓	4L	184	229	272	22	222	✓					POEIT						
07			35.44.1	35.43.8	048	3L	101	229	272	22	222	✓					POEIT						
00			4-44.5	4.44.0	040			242	275	12	228	✓					POEIT						
09			35.36.1	35.35.8	360	3R	357	225	245	003	242	✓					POEIT						
00			4-44.5	4.43.9	✓	1R	359	228	208	000	242	✓					POEIT						
12			35.30.7	35.30.4	✓	✓		244	151	003	243	✓					POEIT						
35			4-22.8	4.21.1	✓	✓		244	139	004	244	✓					POEIT						
15			35.40.4	35.40.0	✓	✓		245	133	006	244	✓					POEIT						
18			4-21.4	4.21.0	✓	✓		246	133	006	244	✓					POEIT						
15			35.50.2	35.50.0	✓	✓		247	133	006	244	✓					POEIT						
00			4-21.7	4.21.0	✓	✓		248	133	006	244	✓					POEIT						
20			36.00.0	36.00.0	✓	✓		249	133	006	244	✓					POEIT						
32			4-22.0	4.21.0	✓	✓		250	133	006	244	✓					POEIT						
33			36.10.0	36.10.0	✓	✓		251	133	006	244	✓					POEIT						
00			4-21.9	4.21.0	✓	✓		252	133	006	244	✓					POEIT						
25			36.20.1	36.20.0	✓	✓		253	133	006	244	✓					POEIT						
36			4-22.0	4.21.0	✓	✓		254	133	006	244	✓					POEIT						
27			36.30.1	36.30.1	003	2L	005	246	133	006	244	✓					POEIT						
59			4-21.4	4.20.7	003	2L	005	246	133	006	244	✓					POEIT						

OCEANDEVIRON EIGHT 3780/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTJG DOPART		SNR		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		5 OF	
LCO D11 HADREU		ENDS WHITE		INT		FEBLEDE		05-18245		LERI		LERI		15ATB			
TIME	INS E/W	#1	VF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS	
1031	N		36.39.2	36.39.4	180				285							BT# 208	
158	W		4.18.7	4.16.9					001	244	1000					A/H	
34			36.30.1	36.30.0					311								
35			4.18.1	4.17.8	182	22	184	245	006	240	✓					BT# 209	
37			36.17.6	36.17.5					007								
40			4.18.0	4.18.0	180	0	180	247	005	246	✓					BT# 210	
39			36.10.2	36.10.0	✓	12	181	✓	315	✓	✓					BT# 211	
30			4.18.0	4.18.0	✓				007								
41			36.00.3	36.00.0	✓				323	✓	✓						
55			4.17.8	4.18.0	✓			248	008	✓	✓					BT# 212	
44			35.50.3	35.50.0	✓				315	✓	✓						
19			4.17.7	4.18.0	✓	22	182	✓	009	✓	✓					BT# 213	
46			35.40.3	35.40.0	✓				293								
43			4.17.8	4.18.0	✓	32	183	250	016	✓	✓					BT# 214	
49			25.30.2	35.50.0	✓				289	✓	✓						
07			4.17.8	4.18.0	✓	22	182	247	009	✓	✓					BT# 215	
50			35.26.3	35.25.9					242	✓	✓					A/H	
10			4.16.7	4.17.0				257	009	✓	✓					BT# 216	
53			35.30.4	35.30.8					286	✓	✓						
02			4.16.6	4.05.0	356			242	007	✓	✓					BT# 217	
55			35.40.1	35.40.0					277								
18			4.04.2	4.05.0	360	20	358	244	007	245	✓					BT# 218	
✓			35.50.0	35.50.0	✓				272								
45			4.04.3	4.05.0	✓	12	359	✓	003	244	✓					BT# 219	
1100	✓		35.59.9	36.00.0	✓				299								
12			4.04.4	4.05.0	✓		✓	243	004	244	✓					BT# 220	

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LTG DC/MAT		SNR		AIRCRAFT BUND			TRACK				FROM			TO		DATE		OF			
LEON M. J. ZELL		41		VLF		42		149667			0518345				LEP			LEP		15 APR 20		6	
TIME	N/S E/W	ER'S WHITE	ER'S WHITE	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS								
11 02	N	36.09.9	36.10.0					340								DT# 221							
43 W		4.04.5	4.05.0	360	✓	360	244	001	244	1000'						DT# 222							
05		36.19.9	36.20.0					310								DT# 223							
08		4.04.6	4.05.0					004	245	✓						A/H							
07		36.29.9	36.30.0					005	242	✓						DT# 224							
37		4.04.7	4.05.0					003	240	✓						A/H							
10		36.39.7	36.40.0					003	240	✓						DT# 225							
06		4.04.9	4.04.9	360				180	242	✓						DT# 226							
14		36.39.2	36.39.4					001	242	✓						DT# 227							
09		3.52.6	3.52.0	180				315	243	✓						DT# 228							
16		36.29.9	36.30.0					006	241	✓						DT# 229							
29		3.52.2	3.51.9	181				333	243	✓						DT# 230							
18		36.19.9	36.20.0					012	244	✓						DT# 231							
59		3.52.1	3.52.0	180				330	244	✓						DT# 232							
21		36.09.3	36.09.0					013	246	✓						DT# 233							
30		3.52.3	3.52.0	✓				302	246	✓						DT# 234							
27		36.00.2	36.00.0					010	244	✓						DT# 235							
38		3.52.4	3.52.0	✓				269	244	✓						DT# 236							
26		35.50.2	35.50.0					010	244	✓						DT# 237							
03		3.52.4	3.52.0	✓				271	242	✓						DT# 238							
28		35.40.3	35.40.0					014	242	✓						DT# 239							
30		3.52.3	3.52.0	✓				260	241	✓						DT# 240							
36		35.32.1	35.32.0					013	241	✓						DT# 241							
30		3.51.1	3.51.1	✓				254	241	✓						DT# 242							
33	✓	25.23.2	25.23.2					010	242	✓						DT# 243							
11		3.40.1	3.38.3	090				010	242	✓						DT# 244							

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV LT JT 6 DEPART		SNR		NA FERR L NO		AIRCRAFT BUNO		TRACK		FROM		TO		DATE		OF																	
VDR HARTZELL		ENUS WHITE		#1		VLF		#2		TC		DA		TH		GS		WIND DIR/VEL		TAS		ALT		DIST + TOT		DIST REM		ETE		ETA ATA		REMARKS			
TIME	N/S E/W																																		
11 34	N					35.40.3		35.40.0					212	357	241		271		242														BT # 234		
150	W					3.39.3		3.38.9		35.9			212	357	241		009		242															BT # 235	
37						35.50.3		35.50.0		360			182	359	241		290		244															BT # 236	
20						3.39.4		3.39.0		✓			20	358	239		005		245																BT # 237
39						36.00.2		36.00.0		✓			4	360	236		301		245																BT # 238
48						3.39.6		3.39.0		✓			4	360	236		007		245																MEASURE NAC
42						36.10.2		36.10.0		✓			4	360	236		007		245																BT # 239
19						3.39.5		3.39.0		✓			4	360	236		007		245																BT # 240
44						36.20.1		36.20.0		✓			4	360	236		007		245																BT # 241
52						3.39.5		3.39.0		✓			4	360	236		007		245																BT # 242
47						36.20.0		36.20.0		✓			4	360	236		007		245																BT # 243
21						3.39.5		3.39.0		✓			4	360	236		007		245																BT # 244
49						36.40.1		36.40.0		✓			4	360	236		007		245																BT # 245
49						3.39.5		3.39.0		✓			4	360	236		007		245																BT # 246
53						36.41.4		36.39.8		✓			4	360	236		007		245																BT # 247
24						3.22.0		3.26.5		✓			4	360	236		007		245																BT # 248
55						36.20.7		36.20.0		✓			4	360	236		007		245																BT # 249
✓ 56						3.26.5		3.25.9		✓			4	360	236		007		245																BT # 250
58						36.20.3		36.19.7		✓			4	360	236		007		245																BT # 251
30						3.26.7		3.26.0		✓			4	360	236		007		245																BT # 252
1301						36.11.6		36.09.4		✓			4	360	236		007		245																BT # 253
101						3.25.6		3.26.0		✓			4	360	236		007		245																BT # 254
02						36.03.7		36.00.3		✓			4	360	236		007		245																BT # 255
15						3.25.4		3.26.0		✓			4	360	236		007		245																BT # 256
✓ 65						35.49.9		35.50.0		✓			4	360	236		007		245																BT # 257
36						3.26.0		3.26.0		✓			4	360	236		007		245																BT # 258

OCEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR CDDY HANTRILL	NAV LT JG D PATT RCS WIFE	SNR NA FERRIS	AIRCRAFT BUNO 144667				TRACK OS-1-83 #5				FROM CENT			TO CENT			DATE 15 OCT 82	OF 8
			TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST TOT	DIST REM	ETE	ETA ATA					
1208 N	VLF	#2	180	3L	183	248	282/12	246	1000								BT #247	
100 W	35.404	25.400																
10	3.258	2.260															BT #248	
27	35.203	25.200															A/H	
27	3.250	2.261																
14	35.395	25.400															BT #249	
18	3.144	2.136															A/H	
16	35.499	25.500															BT #250	
44	3.124	2.120																
19	35.598	26.000															BT #251	
12	3.125	2.120																
31	35.797	26.100															BT #252	
40	3.126	2.120																
31	26.196	26.200															BT #253	
00	3.128	2.120																
26	36.295	26.300															BT #254	
31	3.128	2.120																
08	26.396	26.401															BT #255	
56	3.128	2.128															A/H	
32	36.401	26.399															BT #256	
16	3.007	2.005															A/H	
24	36.204	26.205															BT #257	
42	2.597	2.597																
27	26.200	26.200															BT #258	
20	3.000	2.000																
29	26.101	26.101															BT #259	
46	3.001	2.000																

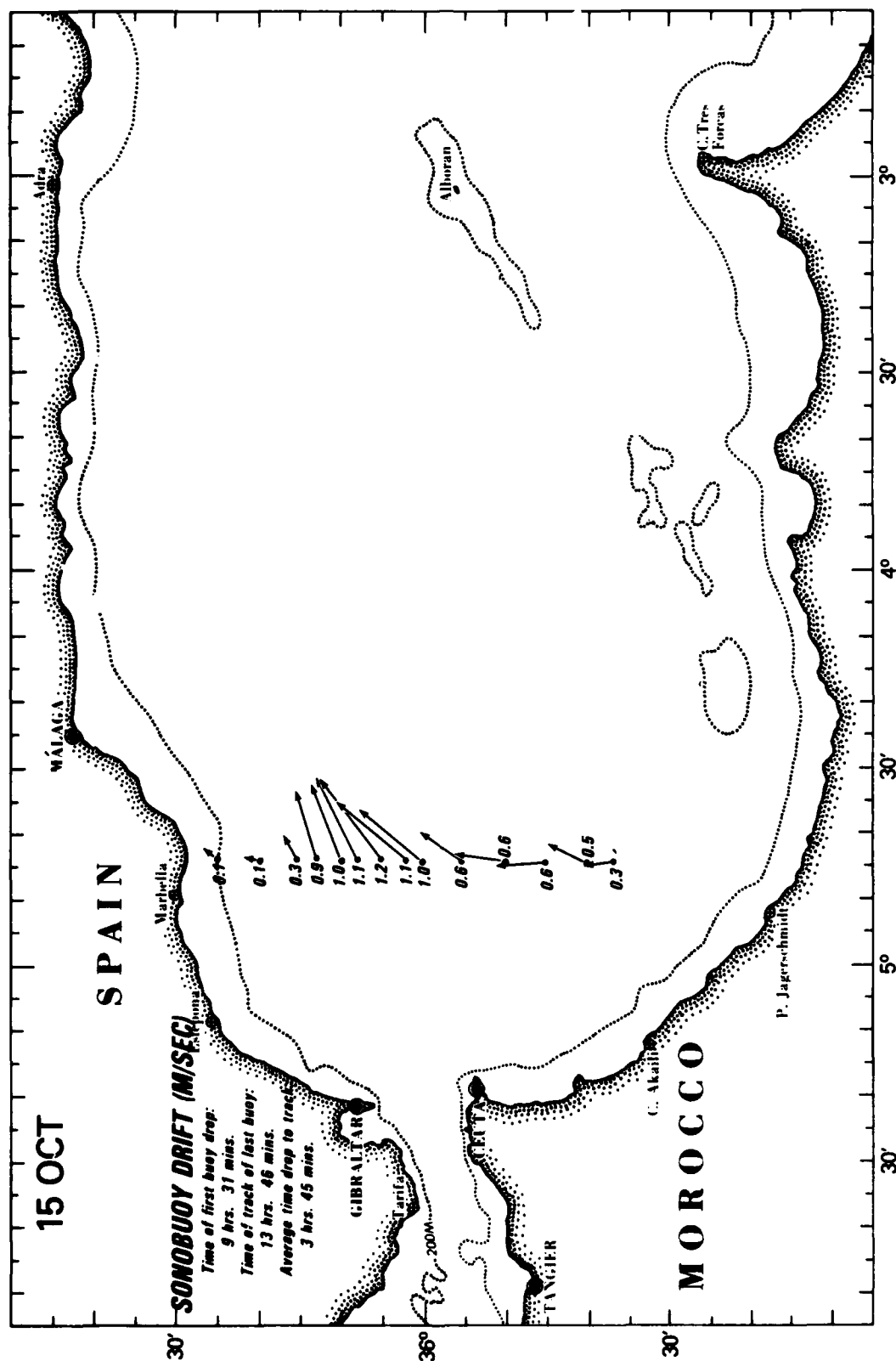
NAVIGATOR'S FLIGHT RECORD

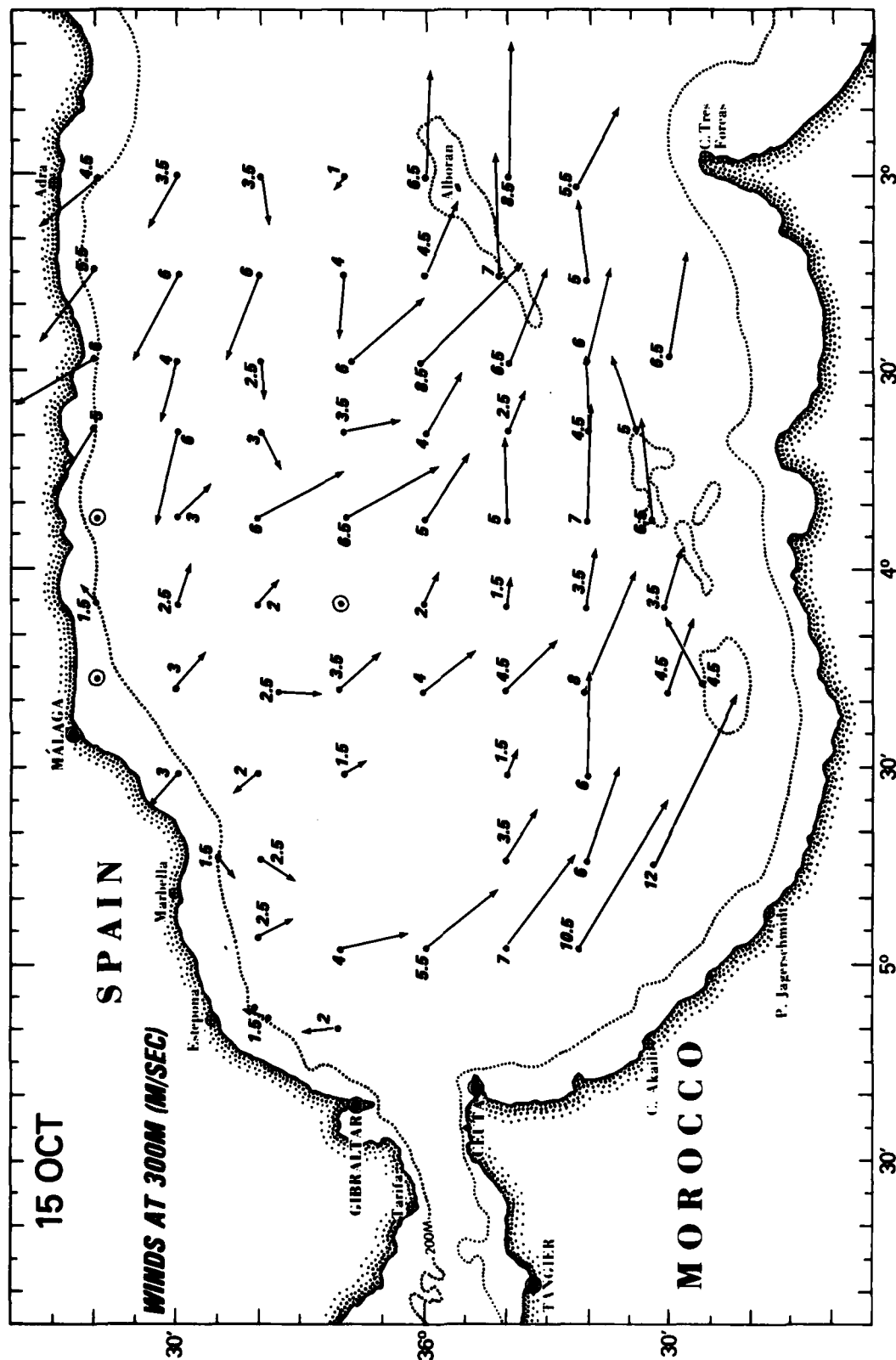
A/C CMDR		NAV	SNR		AIRCRAFT BUND				TRACK				FROM	TO	DATE	9 OF
TIME	N/S E/W	VLF	WLF	WLF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS
1242	10	35.00.0	35.59.9	42	180	32	143	242	270	241	1000					DTM#260
17	W	3.00.4	3.00.0						13							
43		35.56.3	35.56.1													NOT H100000
17		3.00.5	3.00.0													35.56.3 / 2.02.1
44		35.50.0	35.50.0													#261
49		3.00.7	3.00.5													
46		35.41.2	35.41.8													DTM#262
58		3.02.1	3.01.4													A/H
48		35.40.8	35.41.2													A/H B>
52		3.10.1	3.08.7													DTM#211
52		35.48.8	35.48.4													DEIT
34		3.25.8	3.25.1													
57		35.56.5	35.56.2													POSIT
60		3.44.6	3.44.0													
1300		36.01.7	36.01.4													DTM#263
100		3.57.5	3.56.8													A/H
04		36.10.1	36.09.7													DTM#264
43		4.18.2	4.17.3													A/H
07		36.00.2	36.00.1													DTM#265
51		4.18.6	4.18.3													A/H
11		35.49.6	35.50.0													DTM#265
31		4.21.5	4.20.1													A/H
20		35.28.3	35.28.9													NOT SUNDAYS
03		4.45.6	4.44.0													#2
12		35.44.9	35.45.3													
64		4.43.0	4.42.2													#3

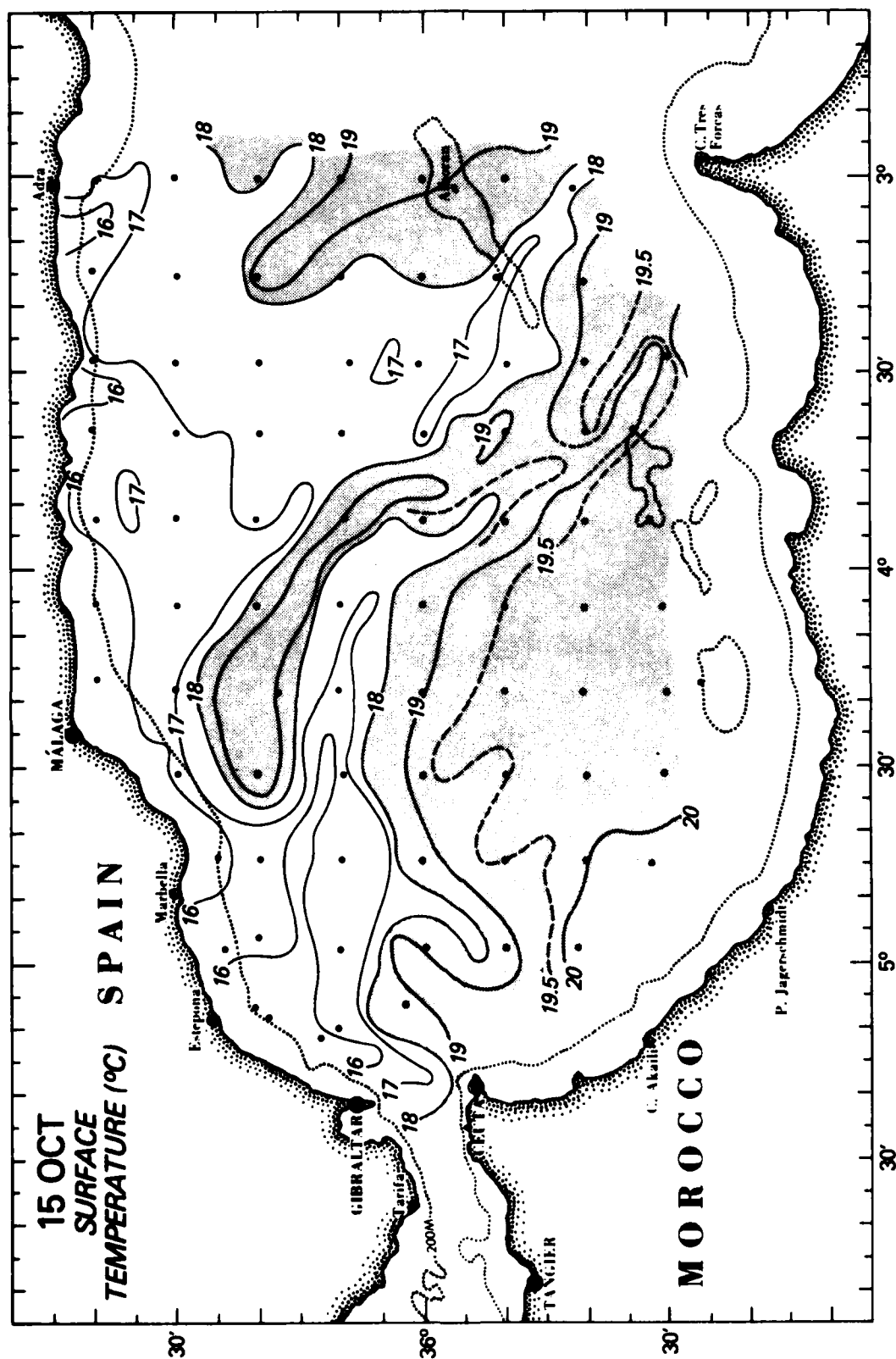
OCEANDEVON EIGHT 3760/1 (REV 81)

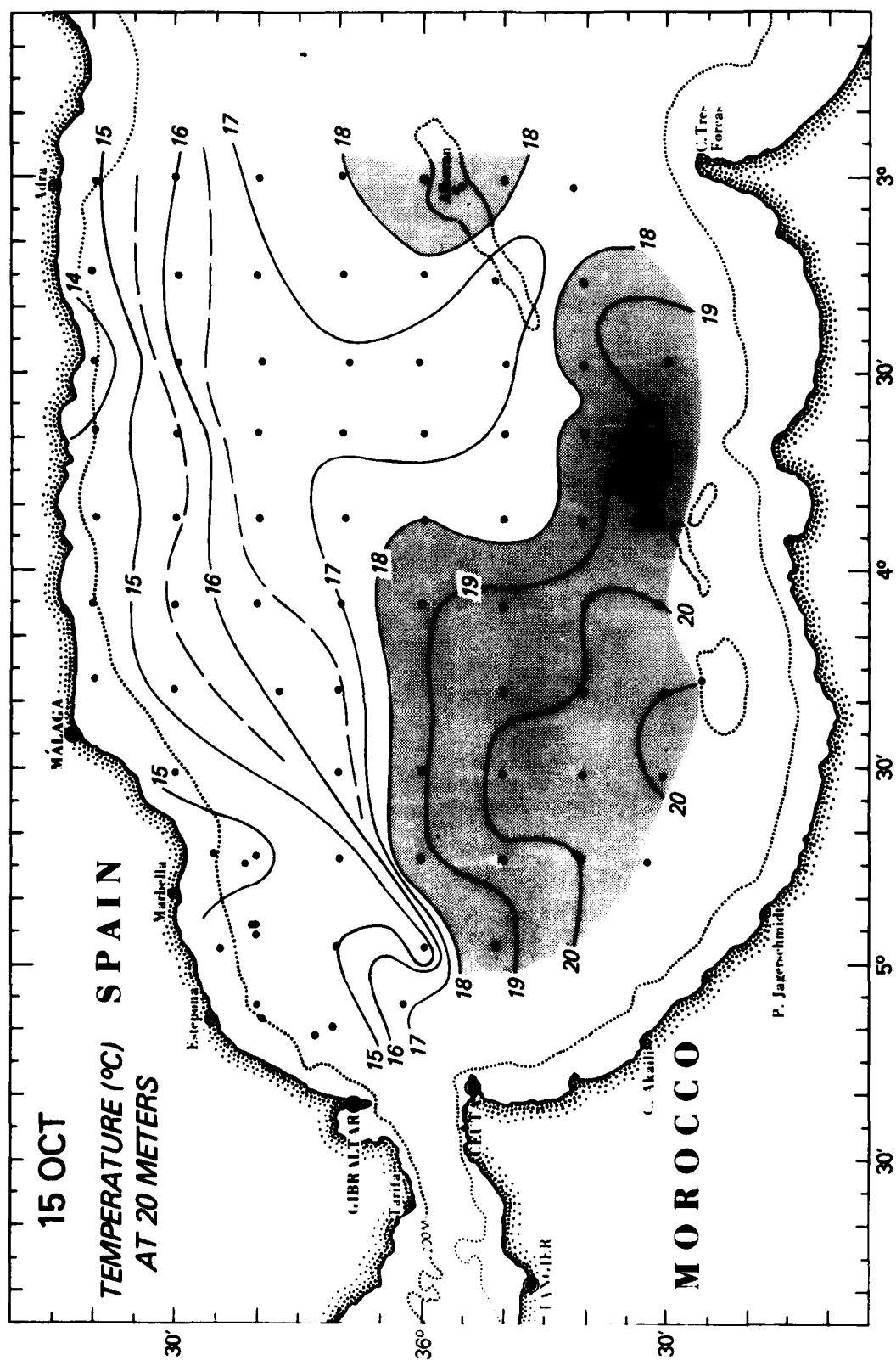
NAVIGATOR'S FLIGHT RECORD

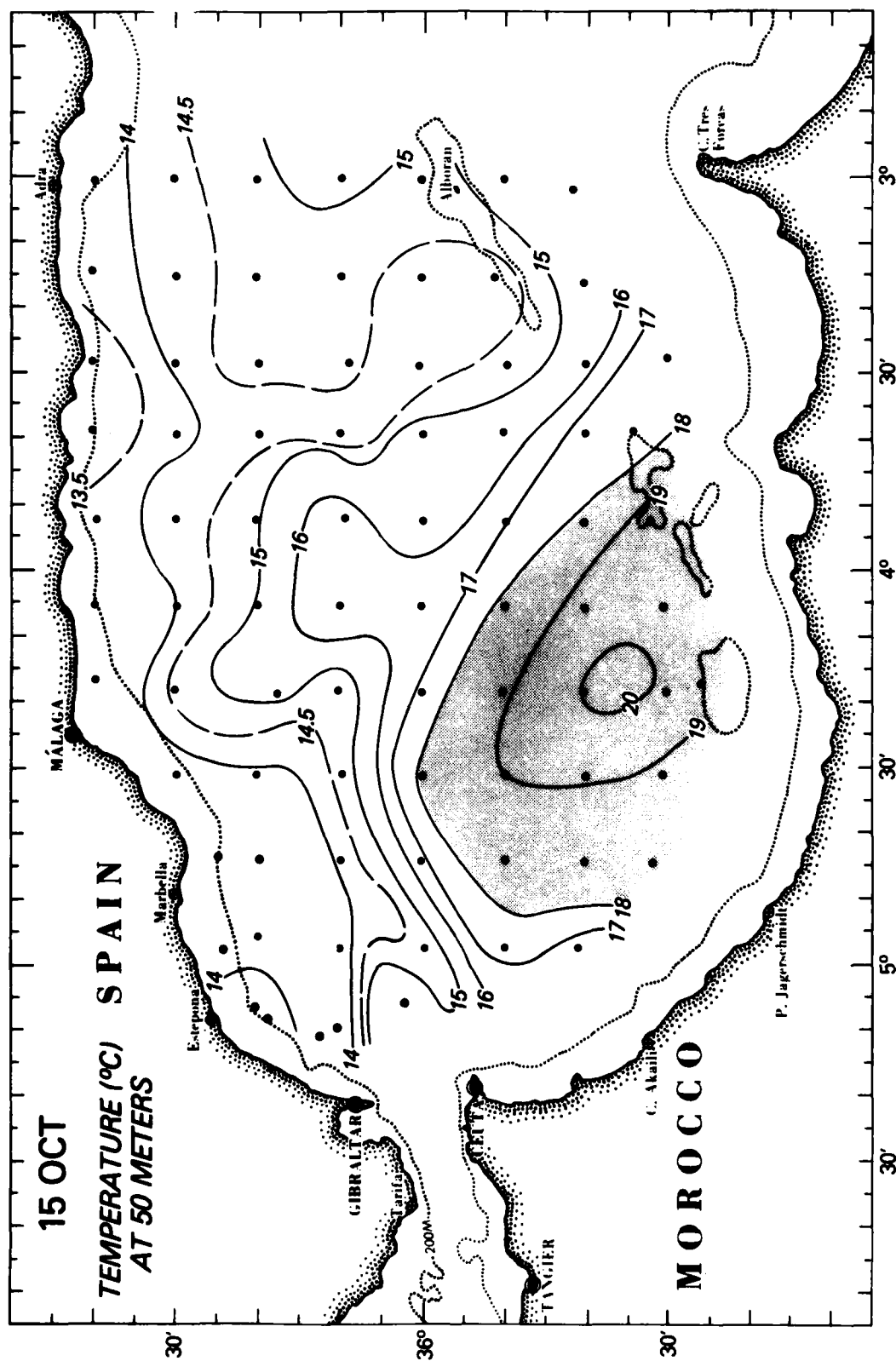
A/C CMOR		NAV		SWR		AIRCRAFT BUREAU				TRACK				FROM	TO	DATE	10 OF
TIME	N/E E/W	VLF	#2	IC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS		
1323	N	3549.9	35501	246	1K	245	217	270	283	600'					#4		
21	N	444.3	1.447					5									
34		3552.4	35540	035			227	150	225	✓					#5		
36		443.4	4.429					9									
25		3557.7	35583	016			✓	235	✓	✓					#6		
49		4.415	4.413					8									
27		26.044	26.051	016			229	233	229	✓					#7		
40		4.388	4.387					6									
28		26.066	26.071							✓					#8		
16		4.377	4.375														
29		36.092	36.098	027			230	213	226	✓					#9		
67		4.358	4.352					8									
32		26.108	26.115							✓					#10		
60		4.351	4.346														
37		26.127	26.121	030			221		220	✓					#11		
28		4.346	4.351														
41		26.136	26.142							✓					#12		
55		4.369	4.366														
43		26.157	26.162	275			202		203	✓					#13		
26		4.428	4.425														
45		26.217	26.218							✓					#14		
12		4.427	4.445												BT #266		
46		26.255	26.261	021			217	201	210	✓					#15 BT #267		
26		4.429	4.432					12							A/H		
✓52	✓	26.196	26.200							✓					BT #268		
18		5.073	5.064												A/H		

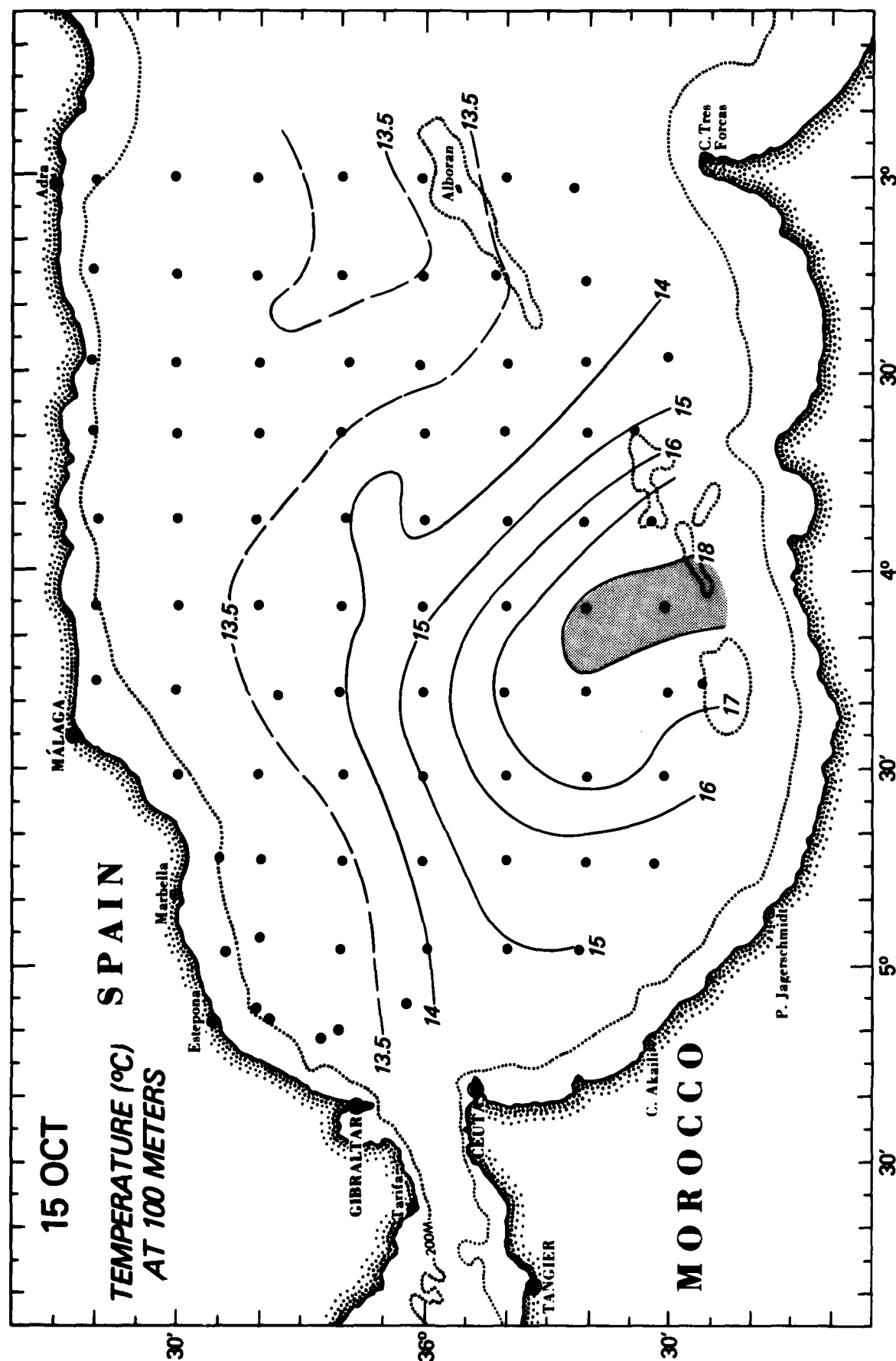


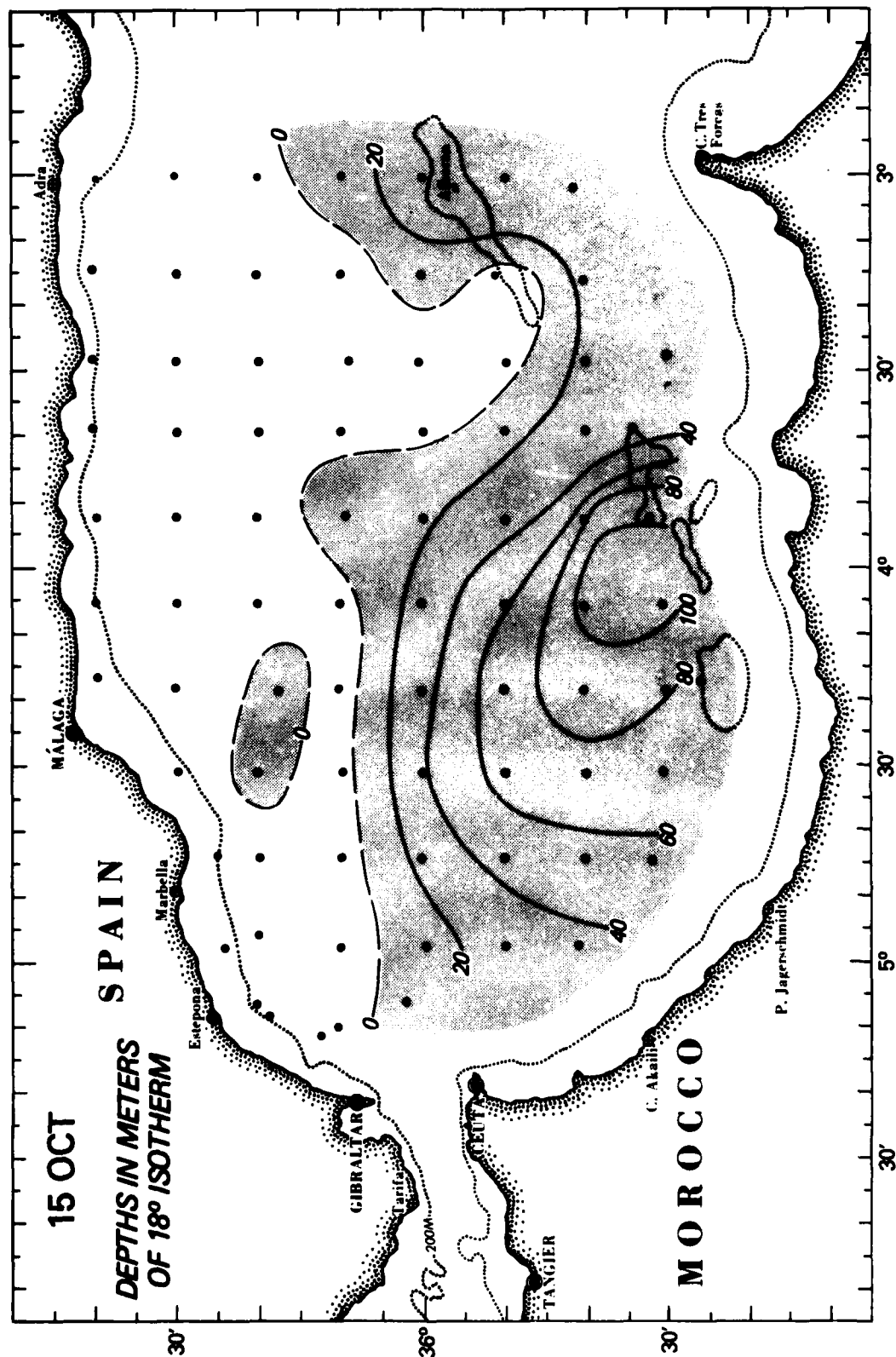


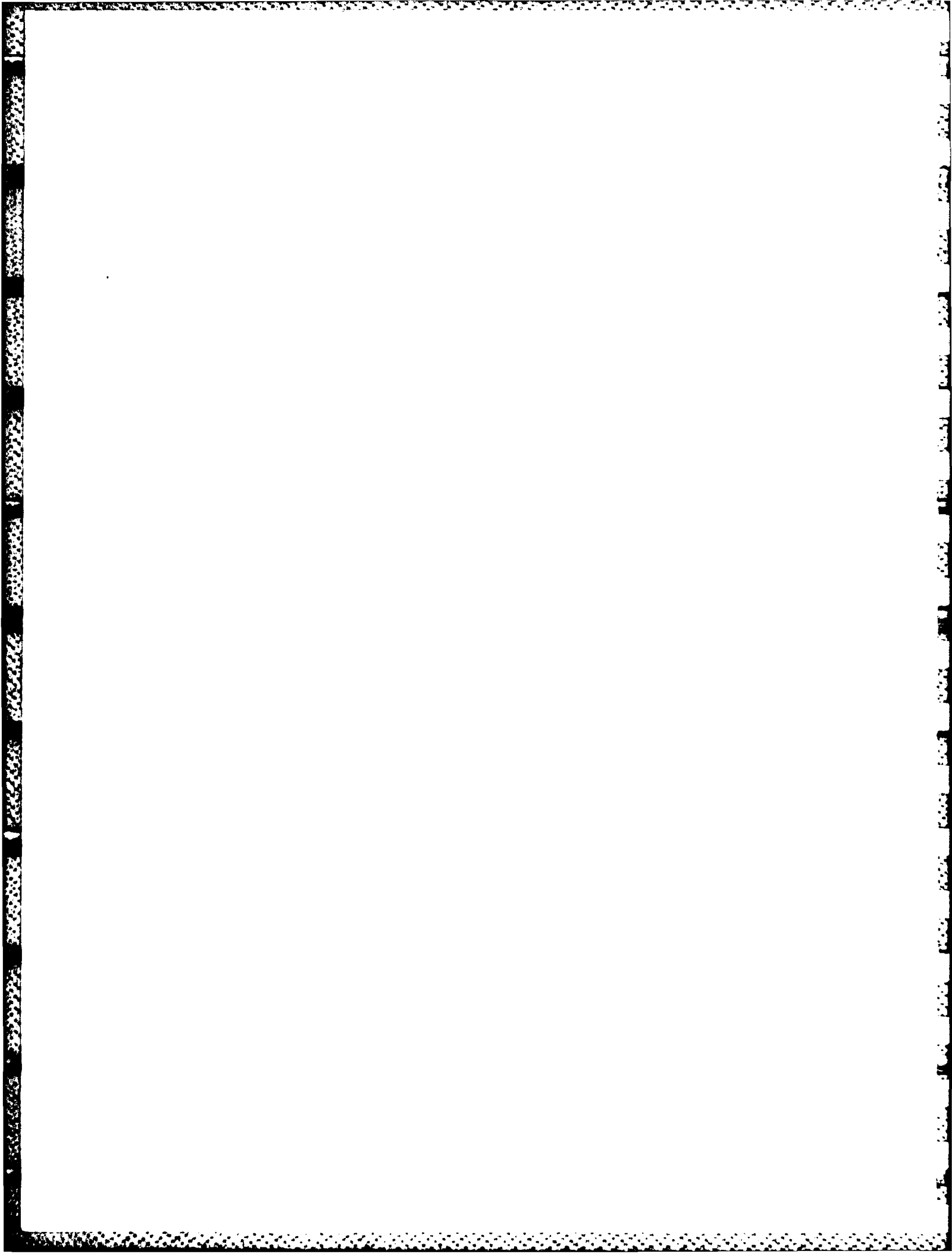












18 OCTOBER 1982

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AN ANALYSIS OF AIRCRAFT DATA COLLECTED IN THE ALBORAN
SEA DURING DONDE VA. (U) NAVAL OCEAN RESEARCH AND
DEVELOPMENT ACTIVITY NSTL STATION M5.
P E LA VIOLETTE ET AL. JUL 83 NORDA-TN-222 F/G 8/10

2/2

UNCLASSIFIED

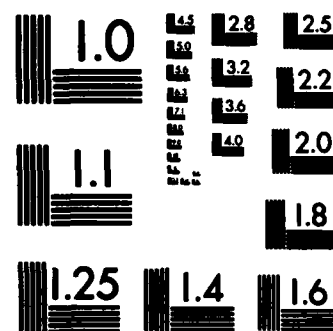
NL

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

NAVIGATOR'S FLIGHT RECORD

A/C CNDR		NAV LOG CONTINUED		SNR		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		OF	
LNO 44711		EAS LOMITE		CHD HERIALC		149660		05-1-83		F6		LEET		18 OCT 82		2	
TIME	INS E/W	E	U/F	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS		
0929		25.41.3	35.37.6	25.28.8	053	312	050	252	229	3200					POSIT		
1030		4.09.4	4.12.6	4.12.7				252	229								
41		25.45.2	35.41.4	35.42.7	V	V	050	250	229	V					POSIT		
00		4.03.2	4.06.2	4.07.4				250	229								
43		25.52.1	35.48.4	35.49.6	V	512	048	241	216	V					POSIT		
45		25.54.0	35.46.6	35.56.1				243	216								
45		25.55.6	35.51.9	35.53.2	054	V	049	239	211	V					POSIT		
15		24.6.2	3.48.7	3.50.3				241	211								
47		25.59.8	35.56.1	35.57.3	053	612	047	240	211	V					POSIT		
00		3.39.5	3.41.8	3.42.4				246	211								
00		26.04.6	36.00.8	36.02.1	V	V		275	224	V					POSIT		
00		2.21.7	3.23.9	3.35.5				275	224								
51		26.09.5	36.05.6	36.07.0	V	512	048	240	219	V					POSIT		
00		3.22.8	3.26.0	3.27.4				267	219								
53		26.14.3	36.10.2	36.11.7	V	412	049	241	214	V					POSIT		
00		3.16.0	3.17.6	3.19.5				259	214								
✓55		26.19.9	36.15.3	36.17.2	054	312	051	245	216	V					POSIT		
15		3.07.1	3.09.0	3.10.3				251	216								
1000		26.21.2	36.17.0	36.18.2	237	412	241	244	235	1000'					POSIT		
39		2.05.0	3.06.0	3.08.0				284	235								
01		26.15.9	36.14.3	36.15.7	234	512	239	225	247	V					POSIT		
49		2.09.5	3.11.0	3.12.5				281	247								
02		26.16.7	36.11.9	36.12.6				281	247								
51		3.13.5	3.15.4	3.16.4				281	247								
✓05		26.14.5	36.09.6	36.11.3	234	512	239	225	242	V					POSIT		
55		3.17.3	3.19.1	3.20.2				270	242								

[illegible]

DOCEANDEVRON EIGHT 3760/1 (REV 11)

A/C CMDR		NAV LT JG DONALD SNR		AIRCRAFT BUINO		TRACK		FROM		TO		DATE		REMARKS	
TIME	NS/EN	#1	VLF	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	
1019	N	35 42.3	35 36.0	233	72	240	270	282	236	1000		2700			200110
54	N	35 12.0	4 16.0					290							
21	N	35 46.0	35 33.7	✓				27		✓					200119
01	N	4 16.8	4 19.6					296							
22	N	35 37.8	35 31.4	✓				23							200120
08	N	4 20.6	4 23.3					296							A/H
25	N	35 34.1	35 28.0	327	32	324	195	298	206						200121
16	N	4 21.8	4 23.9					14							
26	N	35 36.5	35 30.6	335				268	210	✓					200122
28	N	4 25.2	4 27.8					17							
37	N	35 29.3	35 33.6	349				208	207	✓					200123
24	N	4 26.7	4 28.1					20							
38	N	35 42.2	35 36.5	✓				266		✓					200124
21	N	4 27.9	4 29.2					27							
29	N	35 45.2	35 39.3	✓				262		✓					200125
16	N	4 28.9	4 30.3					29							
30	N	35 47.9	35 41.9	✓				260		✓					200126
06	N	4 29.8	4 31.1					32							
31	N	35 51.0	35 45.6	✓				261		✓					200127
05	N	4 30.9	4 32.1					32							
21	N	35 52.9	35 47.8	✓				262		✓					200128
58	N	4 31.8	4 32.0					23							
32	N	35 56.8	35 50.7	✓				151		✓					200129
50	N	4 32.8	4 33.9					23							
33	N	35 58.8	35 52.6	✓				274		✓					200130
49	N	4 33.9	4 34.8					24							

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUINO				TRACK				FROM		TO		DATE	OF
										05-1-83 #6				CENT		CENT		16 OCT 83	2
TIME	N/S E/W	# 1	V L F	# 2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS			
1034		25-02.6	35-56.4	35-51.4	345	612	339	195	261	205	1000					20# 31			
41		4 34.8	4 36.7	4 37.1					224										
35		36-05.6	35-59.5	36-00.4	✓				234		✓					20# 32			
38		4 35.9	4 36.6	4 38.1					233										
36		36-08.3	36-02.2	36-03.2	✓				234		✓					20# 33			
29		4 36.9	4 37.6	4 39.0					233										
37		36-11.3	36-05.2	36-06.1	✓				234		✓					20# 34			
23		4 37.9	4 38.6	4 40.0					233										
38		36-14.2	36-08.0	36-09.0	✓				232		✓					20# 35			
16		4 38.9	4 39.5	4 41.0					233										
39		36-17.2	36-11.0	36-12.0	✓			201	200	207	✓					20# 36			
18		4 39.9	4 40.4	4 42.0					233		✓								
40		36-20.1	36-12.9	36-14.8	✓				263							20# 37			
05		4 40.9	4 41.4	4 42.9					233		✓								
41		36-23.2	36-16.8	36-17.8	✓				261		✓					20# 38			
01		4 42.0	4 42.4	4 42.9					24										
41		36-26.2	36-19.7	36-20.8	✓			200	256	202	✓					20# 39			
55		4 43.1	4 43.4	4 44.9					18										
47		36-28.9	36-22.4	36-23.5	✓				20		✓					20# 40			
45		4 44.0	4 44.6	4 45.8					15										
46		36-26.7	36-29.6	36-30.9							✓					20# 41			
22		4 50.8	4 51.1	4 52.4												20# 42			
48		36-24.6	36-24.1	36-24.2	181	72	188	237	295	236	1500					20# 43			
55		4 56.4	4 56.2	4 56.2					30										
✓ 64		36-03.0	36-02.1	36-01.6							✓					20# 44			
24		4 57.4	4 56.6	4 57.0												20# 45			

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM	TO	DATE	OF
TIME	N/E	T	U	V	H	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS
1056		35.55.9	35.54.8	35.54.2		180	62	186	246	307	233	2500					PSIT
107		45.1.5	45.6.0	45.7.0						307							
109		35.44.0	35.42.6	35.41.9						307							PSIT
110		45.7.7	45.6.0	45.7.0						307							A/H
1102		35.35.7	35.34.2	35.33.3		180	32	131	282	285	251						PSIT
107		4.46.9	4.44.8	4.46.1						307							A/H
108		35.55.5	35.52.1	35.52.7		360	62	354	246	280	253						PSIT
109		4.48.0	4.42.5	4.44.6						264							PSIT
110		36.04.1	36.01.8	36.01.3						264							PSIT
111		4.45.1	4.42.4	4.44.6						264							PSIT
112		2.17.2	36.14.5	36.14.3						260							PSIT
113		4.45.1	4.42.5	4.44.0						245	247						PSIT
114		36.26.9	36.24.0	36.23.9						273							PSIT
115		4.44.9	4.42.3	4.43.9						273							A/H
116		36.32.3	36.28.9	36.29.2						284							PSIT
117		4.31.1	4.29.8	4.30.3						240	240						A/H
118		36.20.1	36.16.8	36.16.8						276							PSIT
119		4.31.3	4.29.7	4.31.0		181	82	189	242	032	244						PSIT
120		36.03.9	36.00.2	36.00.3						088							PSIT
121		4.30.8	4.29.7	4.31.0		180	72	187	241	027	238						PSIT
122		35.49.6	35.45.8	35.45.9						298							PSIT
123		4.36.3	4.29.5	4.31.0						298							PSIT
124		35.34.1	35.30.4	35.30.4						305							A/H
125		4.29.3	4.29.5	4.30.7						253	235						PSIT
126		35.30.0	35.26.4	35.26.5						278							A/H
127		4.16.3	4.17.4	4.18.0						026	47						PSIT

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		OF	
TIME	N/S E/W	II	I	U/F	#	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST +TOT	DIST REM	ETE	ETA ATA	REMARKS				
11 39	10	35.38.7	35.35.0	35.35.4	2					285											
23	W	4.15.6	4.16.1	4.17.7	356	6R		354	237	025	249	1000					PSIT				
41		35.48.3	35.44.7	35.45.2						266											
51		4.15.7	4.16.5	4.18.1	360			354	247	028	251	✓					PSIT				
43		36.03.6	36.00.2	36.00.8						259											
59		4.15.2	4.16.5	4.18.0	✓	7R		353	257	030	257	✓					PSIT				
44		36.21.9	36.18.7	36.19.4						277											
56		4.14.8	4.16.4	4.18.0	✓	5R		355	245	019	252	✓					PSIT				
53		36.39.9	36.37.3	36.37.3						306							A/H				
38		4.13.9	4.15.5	4.17.3	090					027	235	✓					PSIT				
56		36.42.1	36.38.1	36.39.3						276							A/H				
✓ 58		4.01.3	4.05.0	4.04.9	180					027	233	✓					PSIT				
1202		36.29.1	36.25.6	36.25.7						303											
38		4.01.1	4.03.8	4.04.9	181	7L		184	242	015	240	✓					PSIT				
06		36.05.9	36.00.7	36.01.3						279											
55		4.01.0	4.03.4	4.05.0	180	6L		186	240	023	242	✓					PSIT				
14		35.51.8	35.46.3	35.46.5						276											
35		4.01.0	4.03.3	4.05.0	✓			✓	242	019	244	✓					PSIT				
14		36.36.4	35.30.3	35.30.5						306							A/H				
32		4.00.7	4.03.0	4.04.6	080				246	024	231	✓					PSIT				
17		35.38.1	35.31.7	35.32.1						298							A/H				
10		3.48.9	.52.1	3.52.7	360				242	040		✓					PSIT				
21		35.55.0	35.48.7	35.49.0						260											
45		3.48.5	3.49.7	3.52.0	✓	7R		353	233	029	238	✓					PSIT				
✓ 28		36.20.7	36.14.8	36.15.0						266											
07	✓	3.49.0	3.49.9	3.52.0	✓	6R		354	250	024	251	✓					PSIT				

OCEANDEVON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		S OF	
TIME	N/S E/W	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1234	1	36.45.6	36.39.7	36.40.1																	
23	1	3.49.2	3.50.2	7.52.0	090															A/H	
37	1	36.44.5	36.38.7	76.38.9																PSIT	
50	1	3.35.5	3.36.7	7.38.4	180															A/H	
41	1	36.29.2	36.23.9	36.23.5																PSIT	
45	1	3.35.9	3.37.4	3.38.9	181	5L	186													PSIT	
48	1	36.03.6	35.57.2	35.57.8																	
10	1	3.35.3	3.37.6	3.39.0	150	8L	188													PSIT	
54	1	35.36.8	35.31.1	35.31.7																A/H	
46	1	3.33.4	3.26.5	3.37.9	099															PSIT	
57	1	35.35.2	35.30.0	35.30.5																A/H	
50	1	3.21.2	3.25.0	3.25.9	260															PSIT	
1302	1	35.55.7	35.51.6	35.52.6																	
53	1	3.20.7	3.24.6	3.26.0	✓	8R	352	277	032	232	✓									PSIT	
07	1	36.13.7	36.10.5	36.11.6	✓	8R	352	244	030	244	✓									PSIT	
35	1	3.20.3	3.24.8	3.26.0																A/H	
14	1	36.41.8	36.38.9	36.40.4																PSIT	
41	1	3.18.4	3.23.9	3.24.5	090															A/H	
16	1	36.41.2	36.28.6	36.39.6																PSIT	
44	1	3.07.1	3.13.0	3.13.3	180															A/H	
27	1	36.17.8	36.13.6	36.14.8	✓	8L	188	240	033	242	✓									PSIT	
05	1	3.06.3	3.12.2	3.13.0																	
27	1	35.59.9	35.54.5	35.55.5																PSIT	
57	1	3.05.9	3.11.9	3.13.0	✓		✓	237	033	236	✓									PSIT	
✓31	1	35.45.2	35.39.1	35.39.7																A/H	
52	1	3.04.6	3.10.7	3.11.8	080															PSIT	

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK				FROM		TO		DATE		PAGE	
TIME	N/S	# 1	VLF	# 2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS					
1334	N	35.48.1	35.41.0	35.42.2				267	286/042									10/1/82	1		
10	W	2.53.2	2.00.6	2.00.5	36.0						1000										
37		26.63.9	25.56.8	35.57.5																	
10		2.53.2	2.38.7	3.00.6																	
41		26.11.3	26.10.9	26.10.9																	
50		2.59.9	2.59.9	2.00.0																	
45		26.24.6	26.24.0	26.23.9																	
00		2.59.9	2.59.8	2.00.0																	
48		26.40.9	26.39.6	26.39.6																	
53		2.59.9	2.59.8	2.00.1																	
056		26.19.2	26.16.7	26.16.6																	
24		3.05.2	3.05.6	3.05.6																	
58		26.16.7	26.12.4	26.12.9																	
01		3.11.2	3.12.8	3.11.5																	
√59		26.14.4	26.10.9	26.11.4																	
01		3.16.0	3.17.5	3.16.2																	
1400		26.12.5	26.09.1	26.09.5																	
21		2.19.4	3.20.7	3.19.5																	
01		26.11.1	26.07.6	26.08.0																	
22		2.23.3	3.24.5	3.23.4																	
03		26.06.2	26.02.7	26.03.0																	
14		3.26.2	3.29.1	3.28.1																	
04		26.04.5	26.01.0	26.01.3																	
33		2.32.4	3.34.1	3.32.0																	
05		26.03.1	25.59.6	26.00.0																	
27	✓	3.37.0	3.37.6	3.36.4																	

KEANDEVIRON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

A/C CMDR		NAV		SNR		AIRCRAFT BUNO				TRACK		FROM		TO		DATE		10 OF	
TIME	N/S E/W	U	I	V/L F	#	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS		
1406	U	36-02.7		35-59.3	35-59.6	278			206	280		1000'					30#9		
17	W	2-40.6		3-40.8	2-29.9					22									
09		35-50.1		25-50.7	35-50.5	162			235	277							30#10		
07		3-41.0		2-39.7	3-29.6					29									
10		35-50.1		35-47.1	35-47.5	260			202	276							30#11		
56		3-47.3		3-46.9	2-45.4					22									
12		35-47.3		35-44.0	35-44.9	247			212	288							30#12		
00		3-50.8		3-50.5	3-48.5					26									
12		35-46.0		35-43.3	35-43.8	243			204	282							30#13		
58		3-54.6		3-53.6	3-52.0					24									
14		35-42.9		35-40.3	35-41.0	242			216	289							30#14		
21		3-59.9		3-58.5	3-56.7					26									
15		25-38.1		35-36.1	35-36.7	217			214	285							30#15		
56		4-04.9		4-02.5	4-01.0					23									
17		35-36.7		35-35.4	35-35.8	245			207	284							30#16		
13		4-10.6		4-07.5	4-06.1					18									
18		35-35.5		35-34.5	35-35.0	264			208	278							30#17		
27		4-16.2		4-12.6	4-11.1					24									
19		35-34.3		35-33.7	35-34.3	272			203	265							30#18		
55		4-23.0		4-18.7	4-17.1					22									
21		35-32.9		35-32.7	35-32.4	251			205	268							30#19		
07		4-38.6		4-33.8	4-32.1					27									
22		35-31.8		35-32.1	35-32.8	262				26							30#20		
10		4-32.6		4-28.1	4-26.4					22									
23		25-28.8		35-29.8	35-30.2	268			244	285							30#21		
14	✓	4-27.1		4-31.1	4-29.5					32									

NAVIGATOR'S FLIGHT RECORD (REV. 8-1)

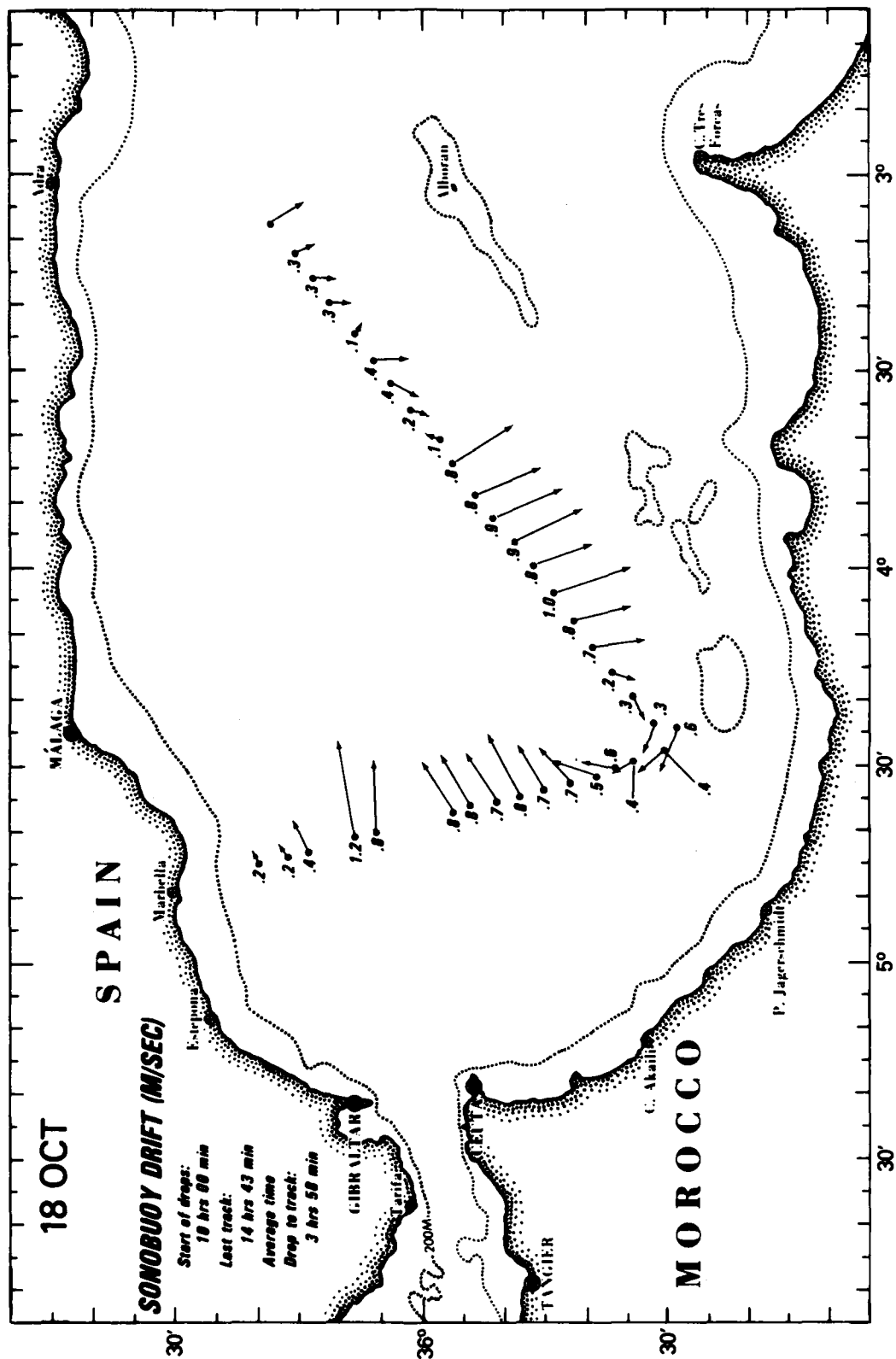
NAVIGATOR'S FLIGHT RECORD

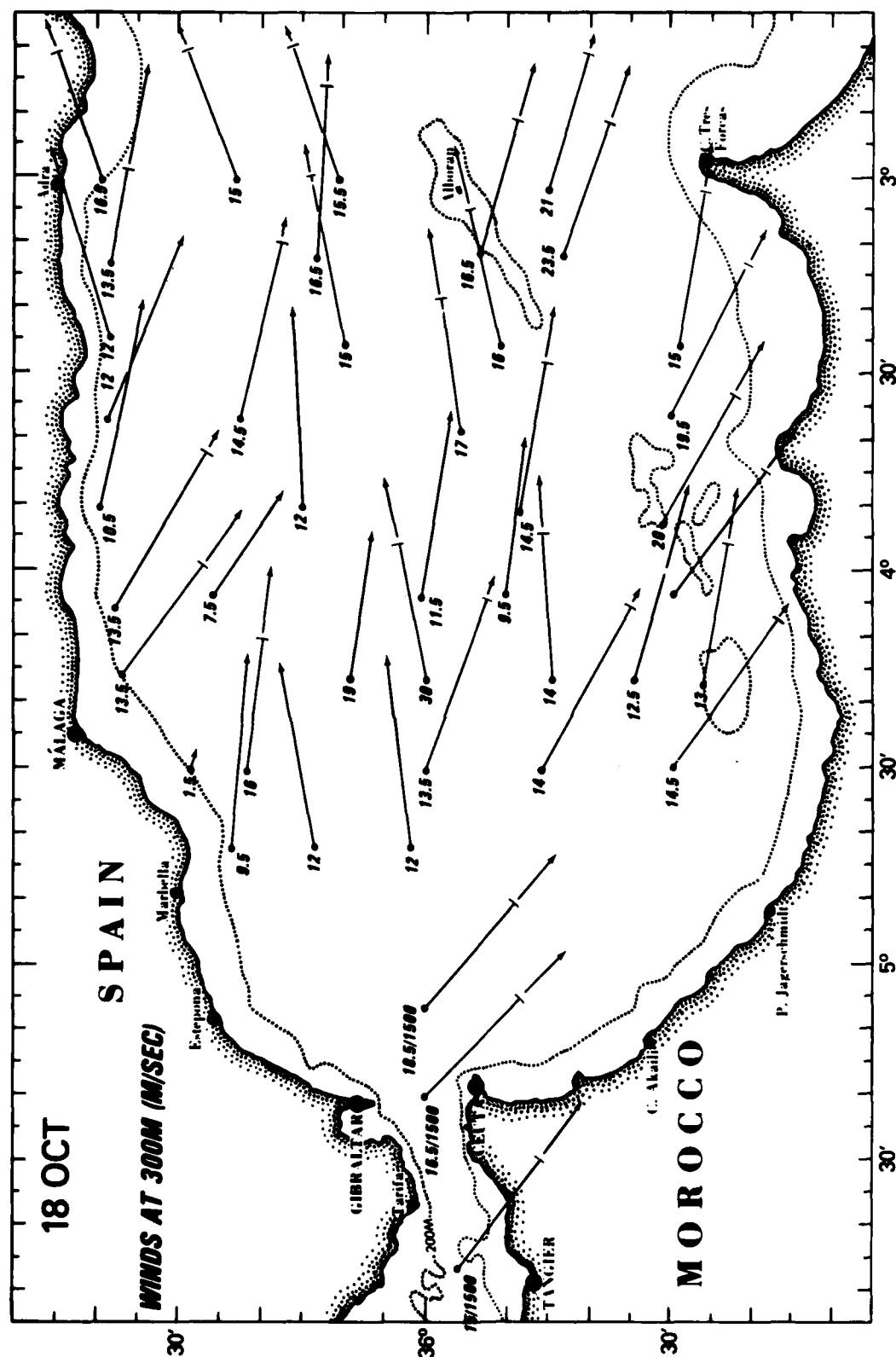
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TIME	N/S E/W	#1	WF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS		
1421	N	35.315	35.332	35.336	015			225	26		1000					20#22		
143	W	4.392	4.315	4.303					24									
25		35.344	35.367	35.369	001			211	26							20#23		
28		4.398	4.310	4.303					21									
26		35.373	35.398	35.402	014			217	26							20#24		
36		4.398	4.305	4.297					28									
27		35.399	35.427	35.423	350			211	23							20#25		
28		4.401	4.301	4.293					28									
28		35.418	35.448	35.455	050			22	26							20#26		
16		4.391	4.290	4.277					30									
27		35.447	35.483	35.489	320			198	25							20#27		
32		4.297	4.287	4.274					21									
20		35.473	35.511	35.519	016			221	240							20#28		
24		4.399	4.282	4.270					28									
31		35.496	35.541	35.546	290			187	25							20#29		
37		4.422	4.306	4.296					24									
32		35.518	35.564	35.571	015			215	25							20#30		
32		4.438	4.310	4.295					23									
33		35.540	35.591	35.597	330			197	260							20#31		
40		4.453	4.316	4.303					18									
					010			207	233							20#32		
									20									
																20#33		
156		35.599	36.053	36.062												20#34		
14		4.483	4.334	4.317														

OCEANDEVON EIGHT 3760/1 (REV 81)

NAVIGATOR'S FLIGHT RECORD

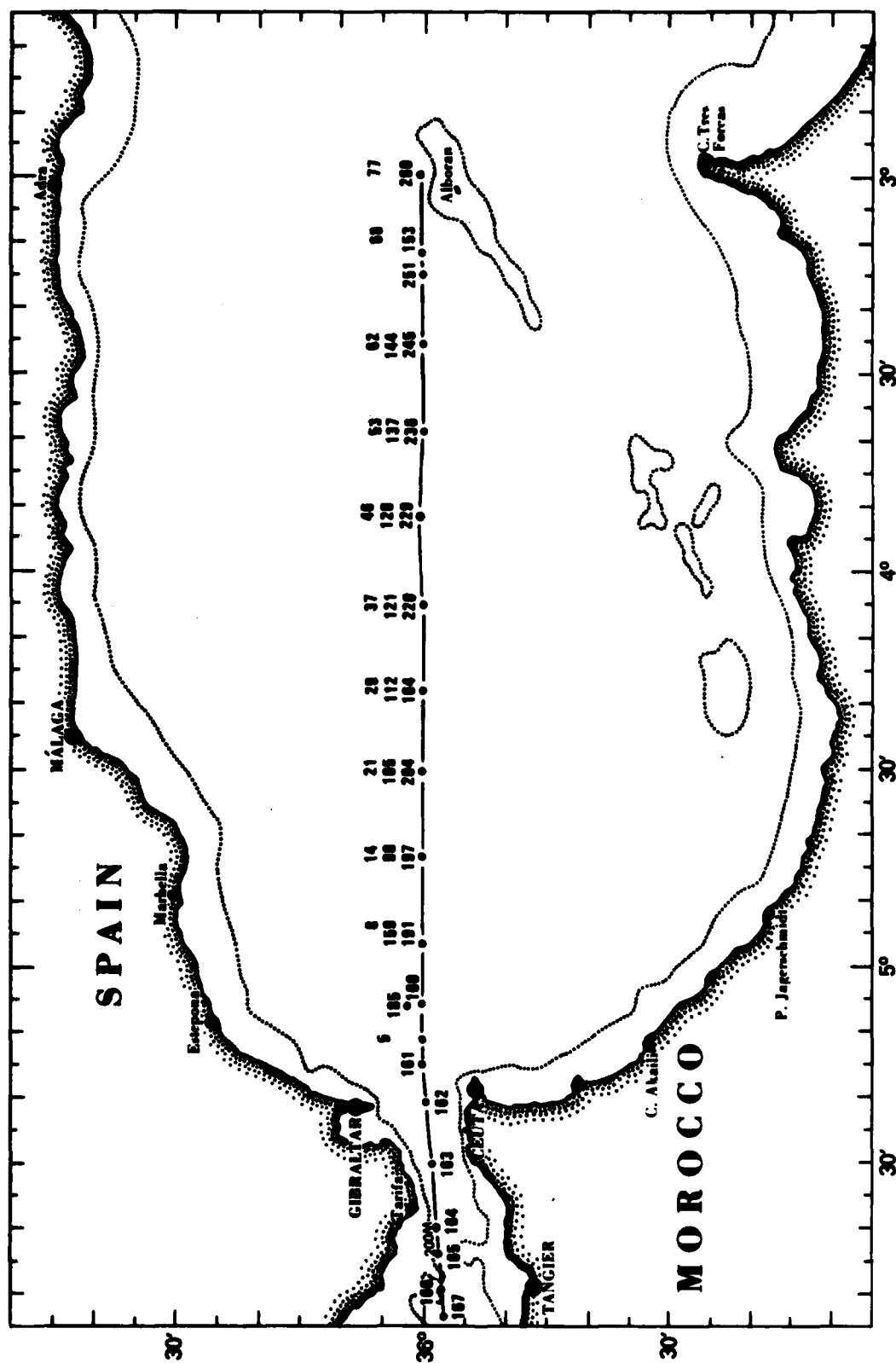
A/C CMDR		NAV		SNR		CRAFT BUENO				TRACK		FROM		TO		DATE	12 OF
TIME	N/S E/W	#1	VLF	#2	TC	DA	TH	GS	WIND DIR/VEL	TAS	ALT	DIST + TOT	DIST REM	ETE	ETA ATA	REMARKS	
1437	N	26-038	26-09.2	26-10.2	096			225			1000'					26-035	
30	W	4-466	4-30.8	4-29.3													
		26	26	26	26			212								26-036	
		4-	4-	4-	4-			187	202							26-037	
1441		26-09.2	26-14.8	26-15.8	254			196	271							26-038	
29		4-58.4	4-41.2	4-29.3					22								
1442		26-11.3	26-17.2	26-17.8	228			203								26-039	
34		5-01.9	4-43.5	4-42.3												A/H DCA	
1443		26-14.2	26-20.1	26-20.6	250											26-040	
28		5-03.0	4-44.1	4-43.1													
1447		26-06.3	36-10.6	26-11.4	273						1000'					PORT C	
30		5-09.4	4-50.0	4-48.2													
1452		25-52.2	25-59.5	26-00.1	269	6L	275	272	211	258	500'					LEVEL	
20		5-25.4	5-06.2	5-04.5					37							A/H DCA	
1455		25-58.7	25-59.7	26-00.0	270	5L	278	218	215	247						PORT "C"	
22		5-29.1	5-19.9	5-18.4					33							A/H DCA	
1501		25-58.2	25-55.8	26-56.2	258	V	263	224	206	249						PORT "C"	
		6-03.6	5-45.7	5-43.7					30							A/H	
1510		26-04.2	25-56.0	26-56.0	270	4L	274	200	225	249						PORT DCA	
		6-56.4	6-29.1	6-27.3					22							AD025T/46	
																CHUD	
																AD025T/46	
1531																CHUD	
																LC15	



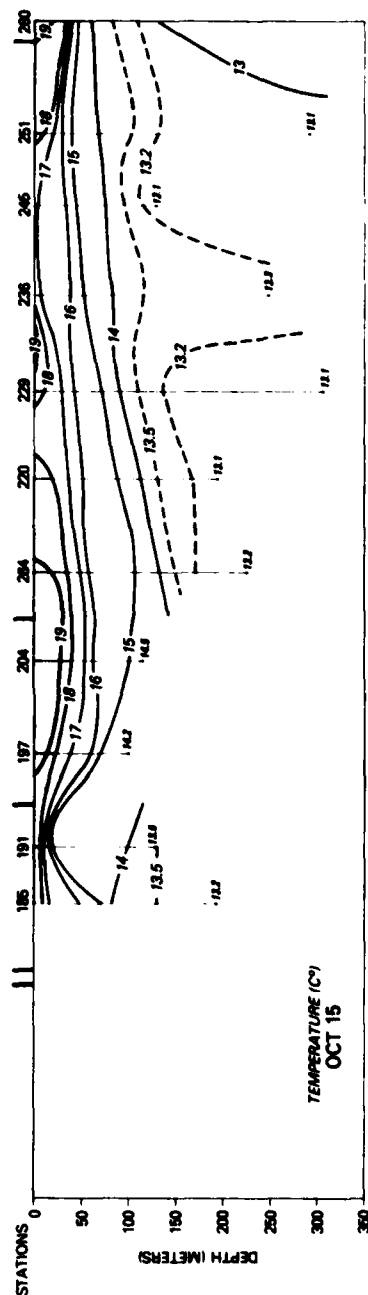
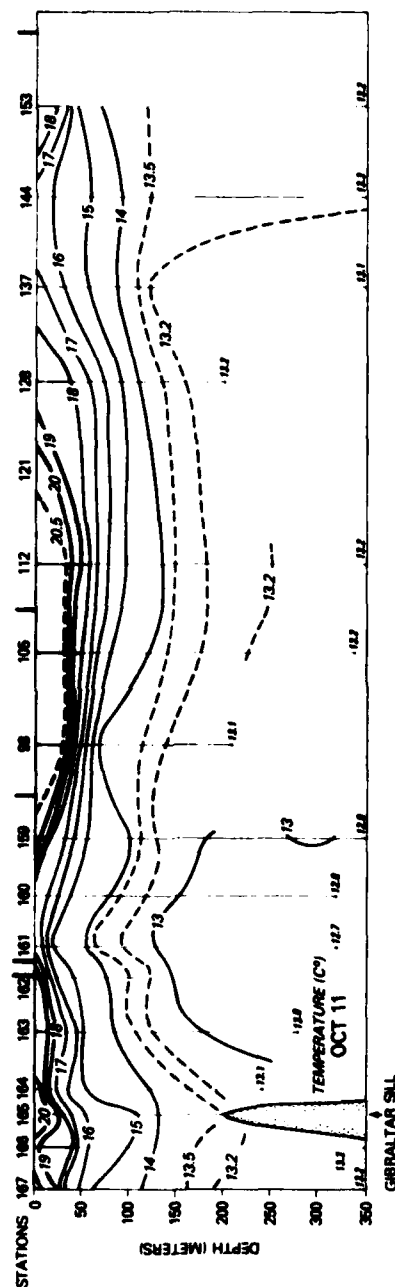
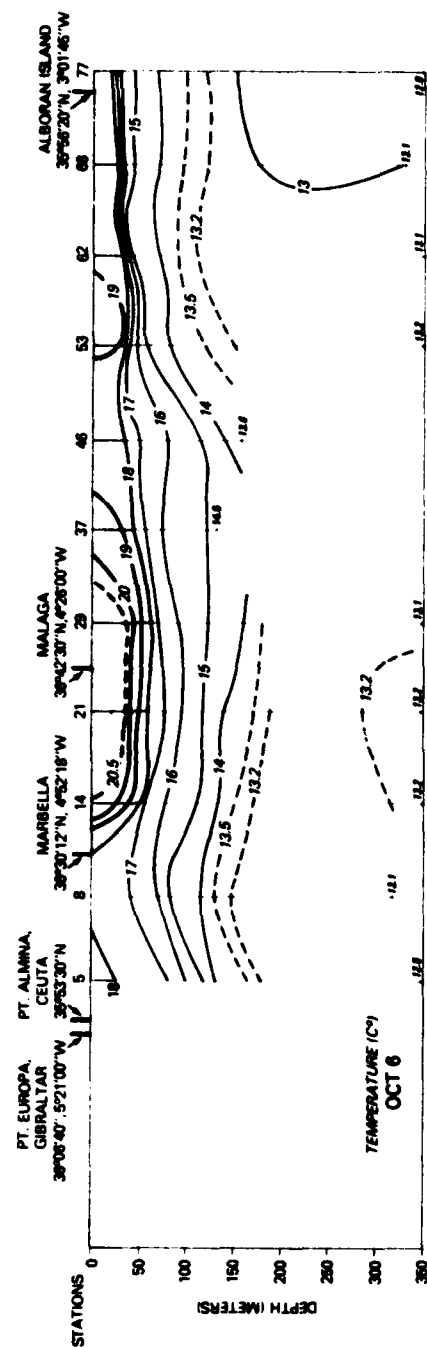


PART II
VERTICAL ANALYSES

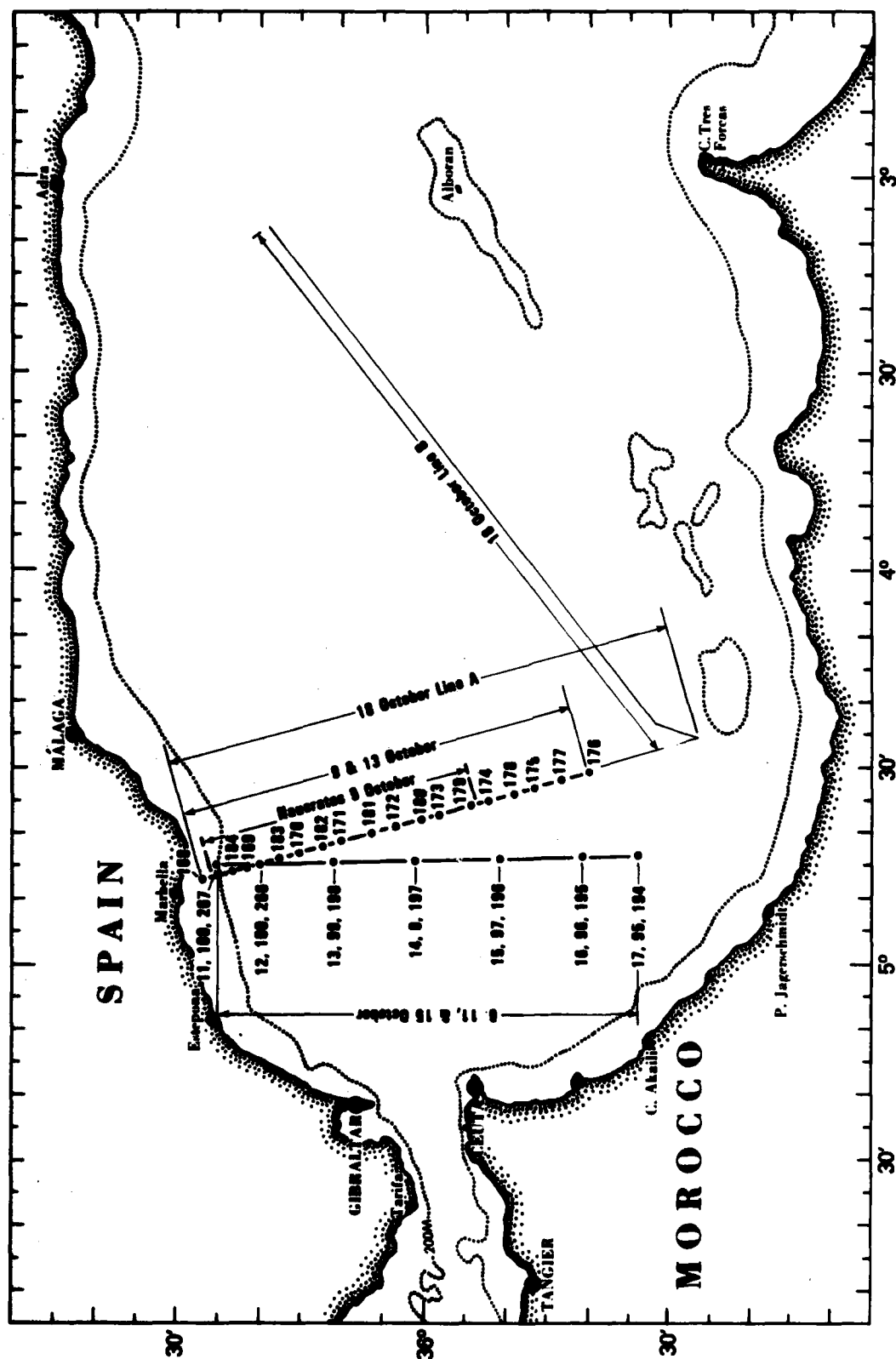
A. The 36° Latitude Vertical Sections



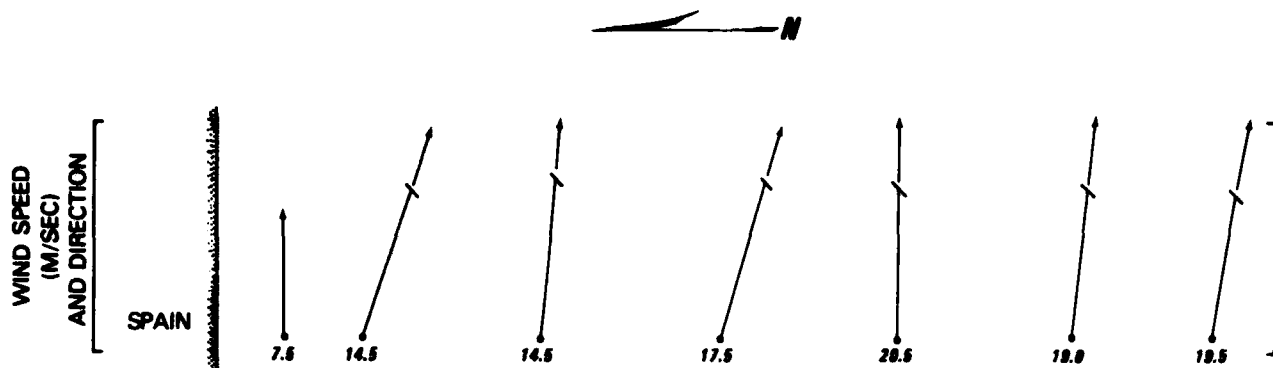
Location plat for 36°N latitude vertical temperature analyses



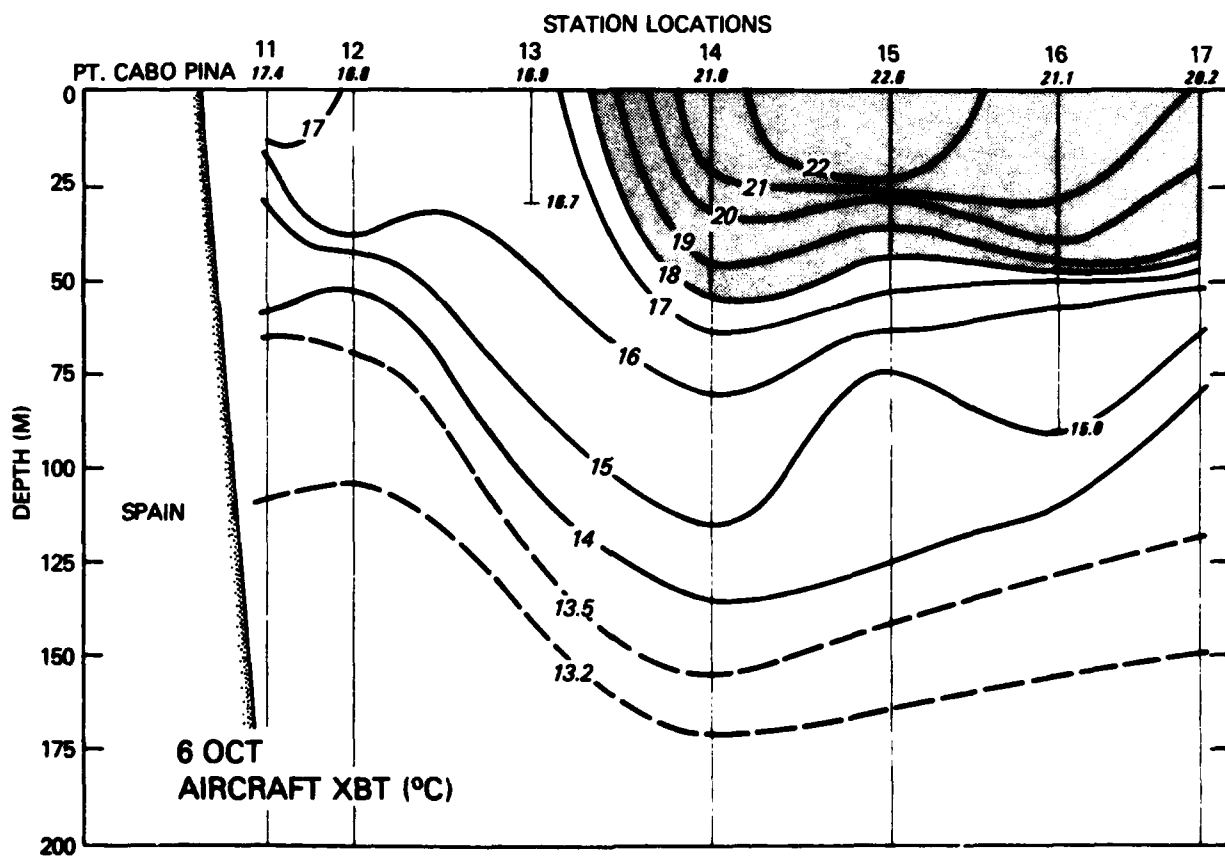
B. The Marbella Line Vertical Sections

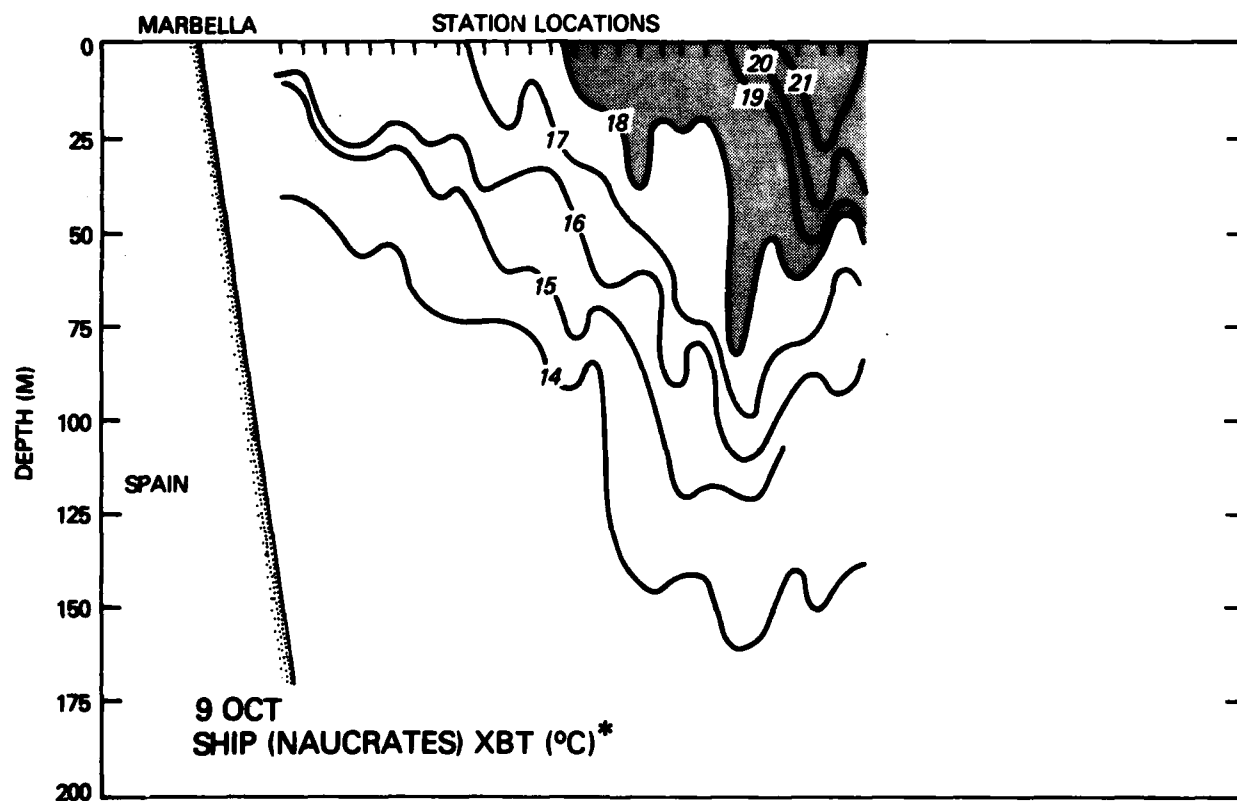
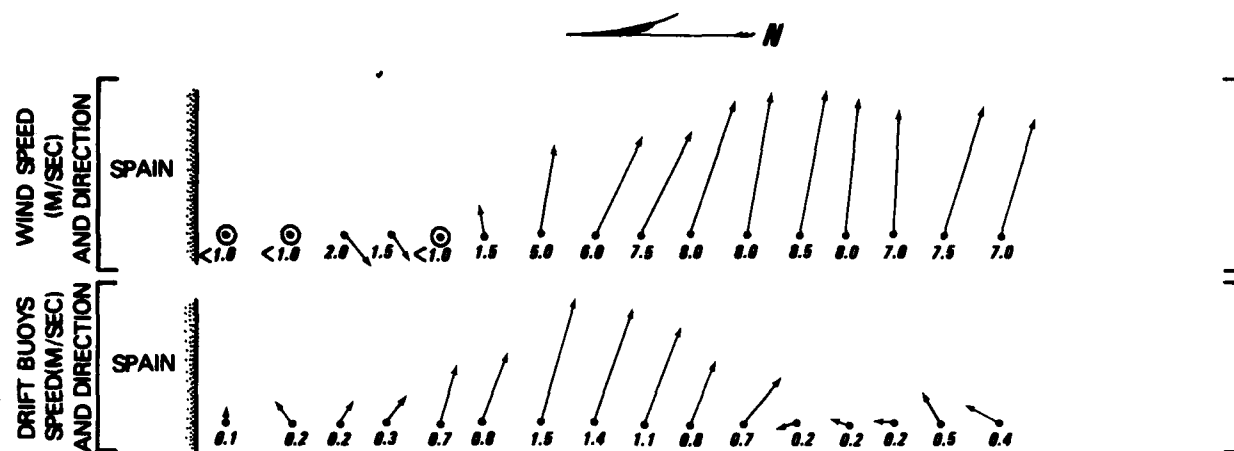


Location Plat for Marbella Lines INS winds, sonobuoy drifts, and vertical temperature analyses

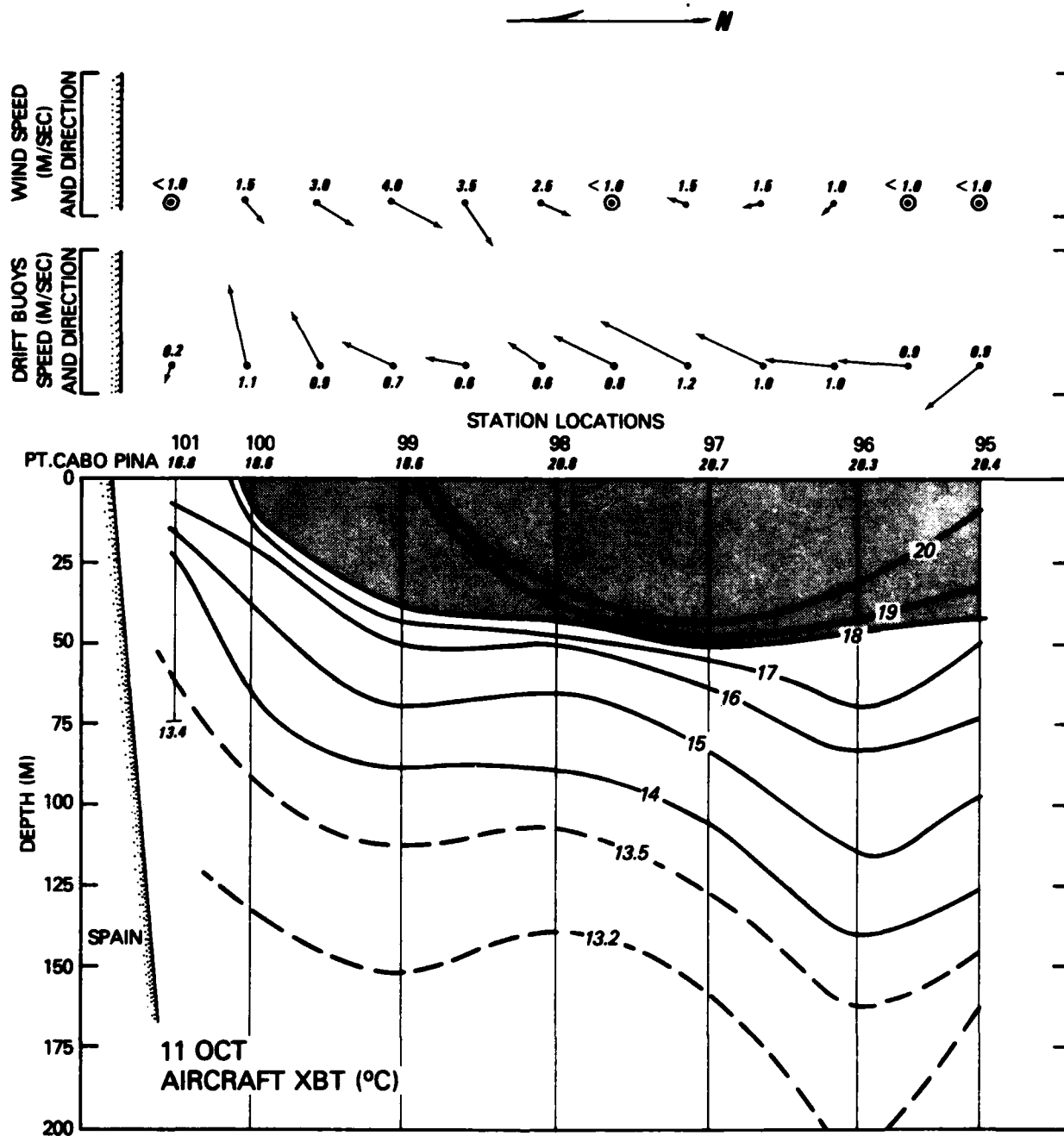


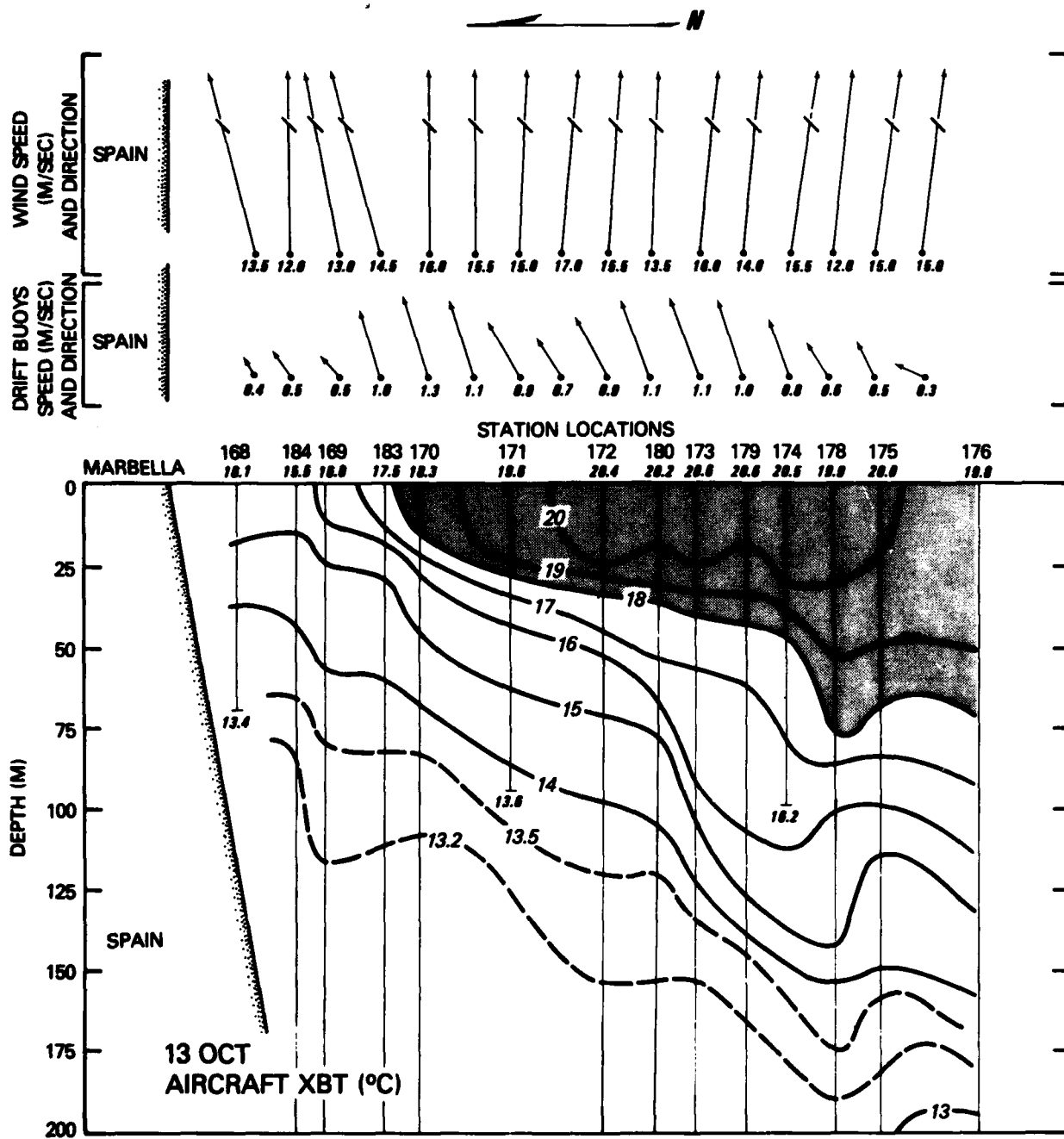
— NO DRIFT BUOY DATA THIS DATE —

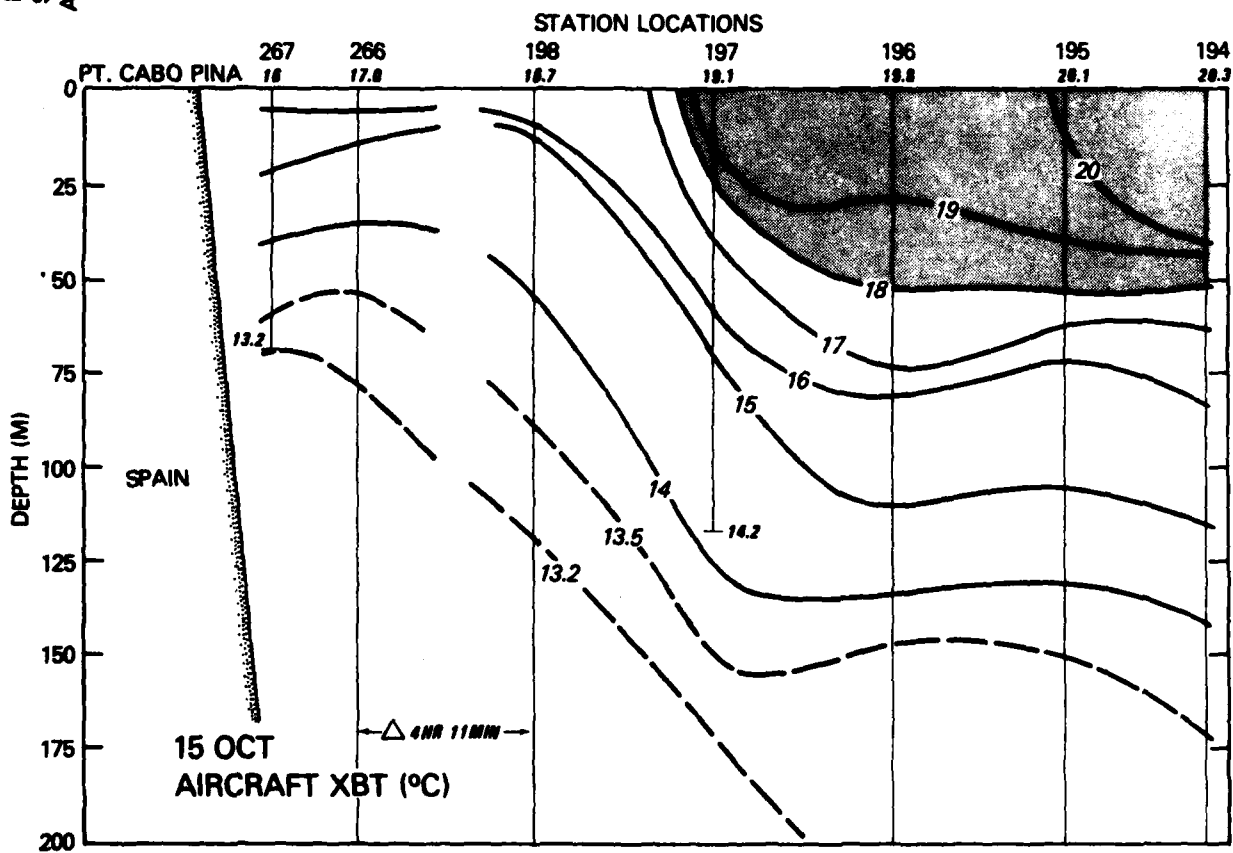
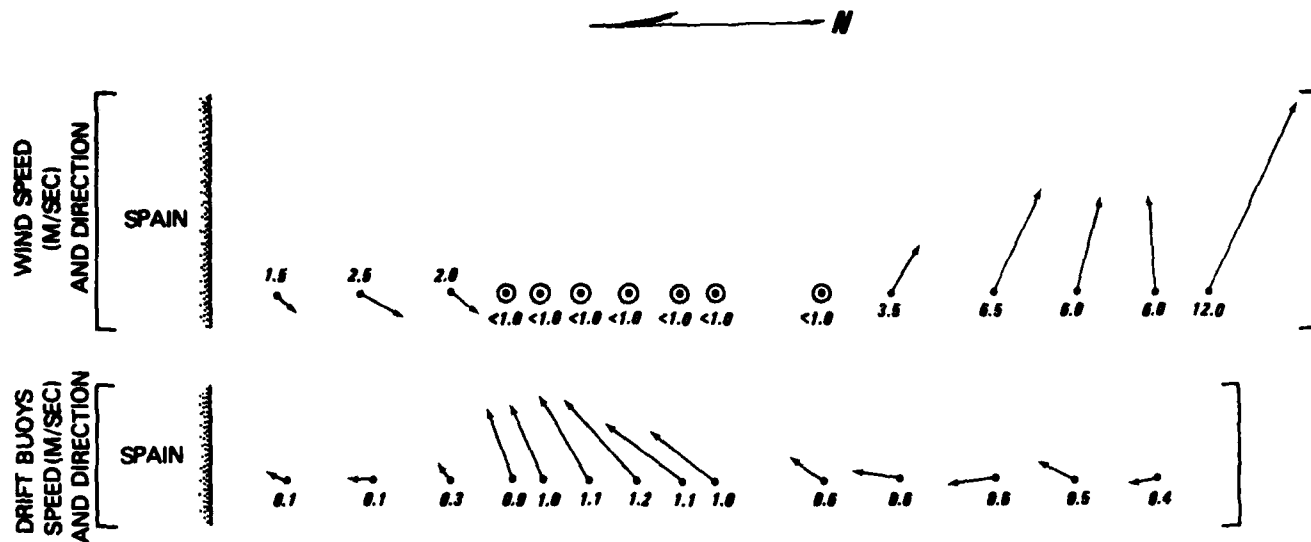


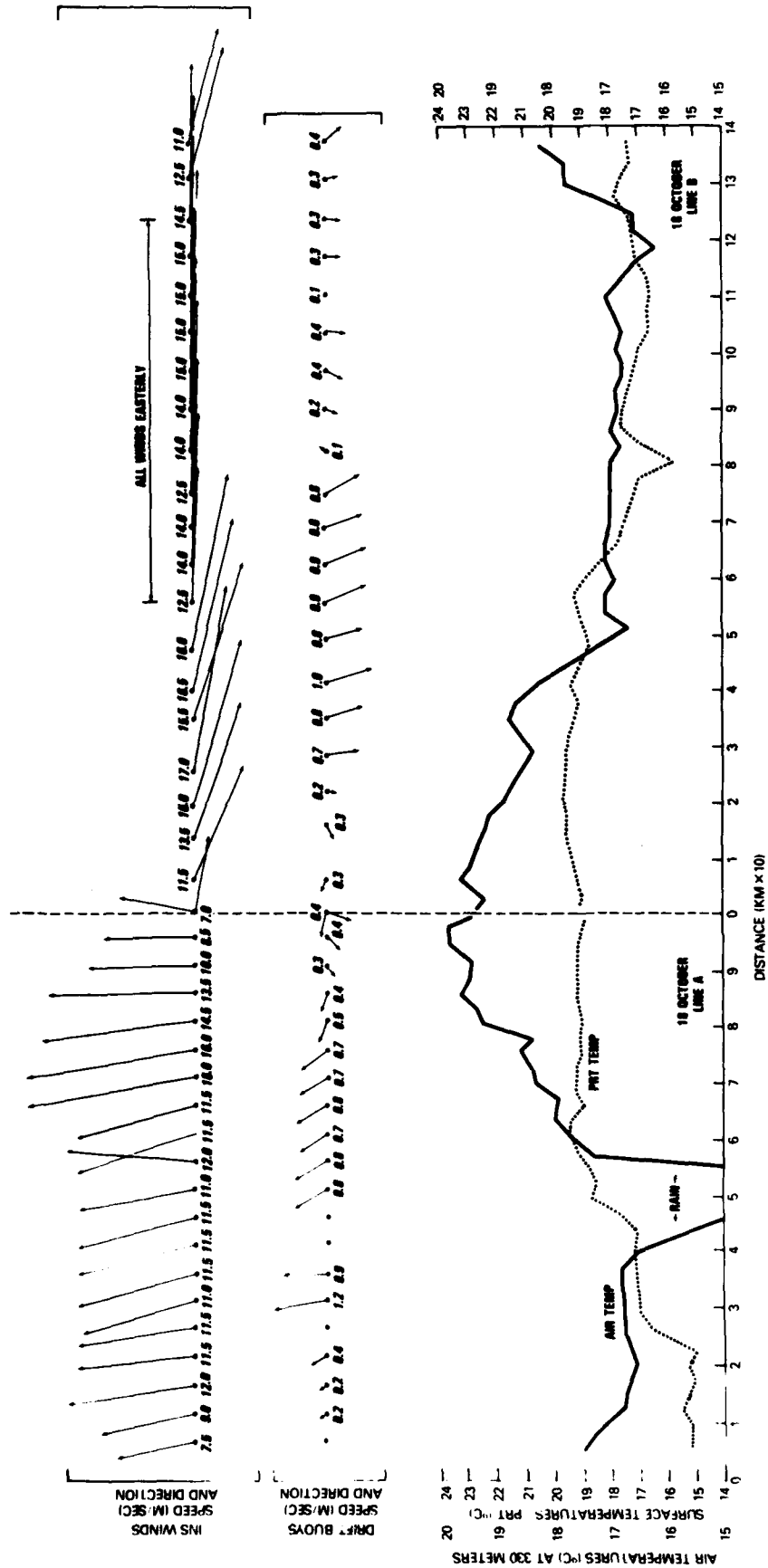


* SHIP XBT DATA WERE COLLECTED DURING THE PERIOD 23:10 HRS 8 OCT THROUGH 03:19 HRS 9 OCT. AIRCRAFT DATA WERE COLLECTED DURING THE PERIOD 10:25 HRS THROUGH 15:13 HRS 9 OCT.









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7. AUTHOR(s) Paul E. La Violette Jeffrey L. Kerling		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Ocean Research and Development Activity NSTL, Mississippi 39529		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 61153N
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) During the period 6 through 18 October 1982, a U.S. Navy aircraft flew a series of oceanographic survey flights over the Alboran Sea as part of a multi-platformed international experiment called Donde Va? The purpose of the flights was to measure the surface and subsurface temperature distribution, the short-term surface flow, and the atmospheric conditions during the period of the intensive field investigations. This technical note describes these flights and presents the analyses of the		

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(continued from Block 20)

Precision Radiation Thermometer (PRT-5), the Airborne Expendable Bathythermograph (AXBT), the sonobuoy drift, and the Inertial Navigation System (INS) wind data.

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